AMATEUR RADIO

OCTOBER 1964

Vol. 32, No. 10

2/-

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1K4	5/-	5 a £1	3V4	15/-		6CW4	socket	5/-	6SQ7GT	22/-		12J5	5/-	5 a £1	956	5/-	5 a £1	EF86	26/-	
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"AMATEUR RADIO"

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★

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OUR COVER

Gympie (Q'land) Scouts, who contacted 57 stations in the 1963 Jamboree-on-the-Air.

Block by courtesy of "Gympie Times."

FEDERAL COMMENT

★

In Amateur circles, the various months of the year have begun to assume new meanings—for instance, February has become N.F.D. month, August is R.D. month, April is Federal Convention month, October is VK-ZL Contest month, and so on. More recently October has become associated with the Jamboree-on-the-Air as well as the DX Contest.

For those unfamiliar with the term "Jamboree-on-the-Air", it is a radio get-together of Scouts from all over the world—a radio campfire in which any Amateur, whether a Scout or not, may participate. The article in last month's journal gives fuller details of the origin, objects and rules. One of the objects was "to introduce them (the Scouts) to Amateur Radio and Electronics". It is the theme of this object on which we would like to enlarge.

Those Amateurs who in past Radio Jamborees have had young Scouts to their shacks and conducted contacts with other stations where Scouts were also present, will confirm the pleasure and interest shown by this younger generation in Amateur Radio as a hobby. Although one of the tests for a Scout Badge is a Morse Code test, it is very, very rarely that this test is ever put to use. A Scout who is able to take part in a QSO over the radio will be keener than ever to launch out into something beyond the normal Badge test.

The intense interest shown by Scouts and their parents who visited the W.I.A. Amateur Station at the Wonga Park Pan-Pacific Jamboree a few years ago indicated that here was a ready source of budding Amateurs. Unlike the High School Radio Scheme, which is now functioning in nearly all States and rapidly making great strides with the younger generation, a similar approach in the Scouting field has never been attempted.

The coming Jamboree-on-the-Air therefore provides an ideal opportunity to Amateurs to present our hobby to another section of the community who may well retain their initial interest and keenness and proceed to the next step—becoming a licensed Amateur. Another Pan-Pacific Jamboree is planned for the near future and Executive have already been invited to participate by providing an Amateur Station as before.

The Jamboree-on-the-Air scheduled for the 17th-18th of this month will enable a large number of active Amateurs to invite local Scout Troops to their shacks and participate in friendly QSOs with other troops in other parts of Australia and overseas. Contact your local Divisional Organiser who will be only too happy to assist. The small effort involved will be found to be richly rewarding and promote the spirit of Scouting in having done your "good deed for the day".

FEDERAL EXECUTIVE, W.I.A.

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AA119 **2-AA119**	AM/FM detector diode	45	100	15	0·2	60	SO-6
BA100	General purpose, small-signal silicon diode	60	100	90	0·2	90	SO-6
BA114	General purpose, small-signal silicon diode suitable for voltage stabilisation	—	—	20	—	90	SO-6
BA122	General purpose, small-signal silicon diode suitable for AFC	100	100	90	0·2	90	SO-6
BY100	Silicon junction power rectifier	800	5A	450	55 ■	70	SO-16
OA90	Sub-miniature HF detector diode	30	45	10	0·2	75	SO-6
OA91	Sub-miniature high-voltage general purpose diode	115	150	50	0·5	75	SO-6
OA95	Sub-miniature high-voltage general purpose diode	115	150	50	0·5	75	SO-6
OA200	General purpose, small-signal silicon diode	50	250	160	—	125	SO-6
OA210	Silicon junction power rectifier	400	5A	500	25	70	SO-16
OA605	Silicon junction, low current medium power rectifier	50	5A	500	25	70	SO-16
OA610	Silicon junction, low current medium power rectifier	100	5A	500	25	70	SO-16
OA620	Silicon junction, low current medium power rectifier	200	5A	500	25	70	SO-16
OA630	Silicon junction, low current medium power rectifier	300	5A	500	25	70	SO-16
OA650	Silicon junction power rectifier	500	5A	500	25	70	SO-16
OA660	Silicon junction power rectifier	600	5A	500	25	70	SO-16
OA670	Silicon junction power rectifier	700	5A	500	25	70	SO-16
OA675	Compensation diode for Class 'B' output stages	1 ●	10	—	—	75	TO-1

■ sine wave = 10msec

● although the reverse break-down voltage is normally much higher than 1V, this device is not intended to be used in the reverse direction

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GETTING STARTED ON 160 METRES

PART TWO

RODNEY D. CHAMPNESS, VK3UG*

IN the first article ("A.R." Aug. '64) a small transmitter for 160 metres was described. In this article an adaptation of the transmitter is described, combined with a few other general ideas that may help you to get started on this band.

THE ANTENNA

Aerials for this band can be a real headache on a suburban block. A normal half-wave dipole will stretch out to a length of 250 feet, and as many suburban blocks are only in the vicinity of 100 feet long, half-wave dipoles are out. It is felt in general amongst Melbourne Amateurs on this band that a quarter-wave Marconi is perhaps the easiest to instal.

My own aerial is a folded quarter-wave, made out of slotted 300 ohm t.v. ribbon. By using a folded type aerial the fed impedance is increased, resulting in lower ground losses, therefore higher radiation efficiency. The earthing system of my aerial consists of the mains earth and also a 130 feet length of insulated wire as a counterpoise (65 feet of 23/.0076 twin flex split in two, laid alongside the building around some trees under a lawn and along the front fence.

The folded radiator is up as high as I can get it at 25 feet. The first 25 feet is vertical and the rest is horizontal. Another advantage with this aerial is the fact that the velocity factor of the twin ribbon is between 0.85 and 0.9, resulting in the aerial being about 110 to 115 feet long instead of 125 feet or thereabouts. This aerial is described in detail in William Orr's book, "S-9 Signals", which I would recommend.

Fig. 1 should give you an idea what the aerial is like. I might add my location is a difficult one for communication, and this is the best aerial I have found to date for this band.

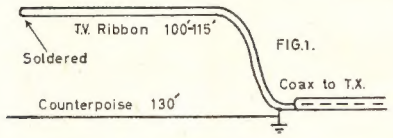

FIG.1.

RECEIVERS

Now to receivers. An ordinary broadcast mantel set is quite suitable to modify for 160 metre work. The information on how to modify a b.c. set's tuning range is covered in April "A.R." The information is in the s.w.l. section on page 14. If you are going to do this, I would recommend using a sensitive 5-valve set and nothing less as signals are nowhere near broadcast station strength. I have not tried this conversion myself, but the results with a good set will be satisfactory. For some time I did conversions to similar sets for the purpose of monitoring mobile bushfire radios on a frequency of 2692 kc. These sets were able to receive mobiles up to 50-60 miles. The mobiles run powers of 7-10 watts and use 9-foot loaded whips. Base stations were heard at distances of a 100 miles or so. These were day-time ranges.

An interesting and economical point about the transmitter described in the previous article is that it can be teamed with an ordinary b.c. set. Using the power from the set, it will run about 5 watts providing the high tension voltage is above 220 volts. The extra loading on the receiver power supply heater line can be largely offset by removing the dial lamps or replacing them with lower wattage types. The high tension drain of the transmitter is approximately the same as the receiver high tension drain.

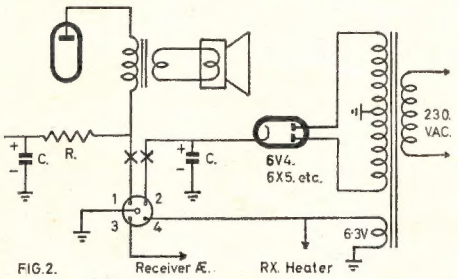

FIG.2.

The modifications to the receiver and transmitter can easily be worked out by studying the accompanying diagrams. Most receivers use a resistance-capacitance filter network in the high tension line. The plate lead of the audio output valve usually comes off the first filter capacitor. The point to break the circuit is at the junction of the first filter capacitor, the dropping resistor and the speaker transformer primary lead. The capacitor is left connected to the rectifier cathode.

A lead is soldered to this capacitor and taken to a pin on the chassis mounted 5-pin miniature socket. Another lead is soldered from the junction of the dropping resistor and the speaker transformer primary lead to another pin on the socket. An earthed lead goes to a pin on the socket. A lead from the receiver aerial goes to another pin on the socket. The remaining pin is wired to the active 6.3 volt heater line, which is easily traced from the dial lamp sockets. Should the receiver require to be used without the transmitter connected, a shorting link across the two h.t. leads will do the trick.

There are of course numerous modifications that can be done to a broadcast receiver. To further cut down the receiver heater drain, the replacement of the rectifier valve with a pair of OA211 silicon diodes is recommended. HR25s or OA210s, etc., can be used in this position if two of them are used in series in each lead. Equalising resistors and capacitors would be advisable across each diode. The value of the capacitor should be about 0.001 μF. and the resistor 100K ohms $\frac{1}{2}$ watt.

Quite a number of receivers use 6M5s or similar as the audio output. By replacing these with a 6BM8, 6AB8 or 6GW8, using the pentode section as the audio output, a spare triode section is available which could be used as a b.f.o., and with no increase in overall current drain in the set. An increase in the bias on the audio output valve won't unduly effect the volume and at the same time a significant saving in high tension current will be achieved.

Now turning to the radio frequency sections. The i.f. valve might be replaced, particularly if it is one of the lower gain types such as a 6U7G, 6K7, 6AD8, etc. A 6BA6 or EF50 could boost the sensitivity quite noticeably. The i.f. may, however, take off, so neutralisation may be necessary. This is accomplished by putting a 5-10 pF. mica capacitor from the plate of the valve to the top of the a.v.c. capacitor. The a.v.c. capacitor will usually have to be reduced to 0.01 μF. for the neutralising to be effective. A small plate may need to be soldered across the valve socket to separate the grid from the plate as much as posisble.

Another thought for sharpening the i.f. is to fit two Philips i.f. transformers coupled as per Fig. 4 between stages. The value of C1 governs the degree of coupling between transformers and consequently selectivity. The larger the value the higher the coupling and gain. Compared with the normal two i.f. transformer set-up, this has lower gain so the substitution of a really "hot" valve would be necessary. A couple of suggestions here would be a 6AC7 or 6EH7. Isolation between the input and output would need to be good, otherwise it would really "take off". Re-arrangement of the components to achieve this isolation may be required plus a shield soldered across the valve socket, shielding the input and output would be a must. This shield must of course be earthed to the chassis.

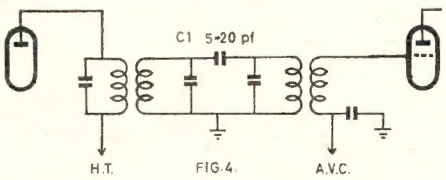

FIG.4.

The front-end could also be given a pep up. A converter using some of the older octal tubes might be replaced with the likes of a 6AE8, 6AN7A, 6BA7, or similar. Some of the t.v. tuner type converter valves such as the 6EA8, 6BL8, 6U8 might also be tried, but care would be needed if a.v.c. is applied to this stage to be sure that the oscillator was not detuned by variations in a.v.c. voltage. Experimentation with the method of signal injection would be needed.

The aerial coil could come in for some attention. If a resonant aerial is used a low impedance aerial coil primary would be desirable. This would consist of a few turns, up to a dozen, wound near the tuned winding. Of course if a non-resonant short aerial is to be used this would be an undesir-

* 5 Princes Street, St. Kilda, Vic.

able modification due to the high impedance of the short aerial already matching the impedance of the aerial coil primary.

As can be seen from Figs. 2 and 3, the modifications to the receiver to run the transmitter are minor, and the alterations to the transmitter described in Part One are fairly minor. There are only a couple of things for comment in the amended transmitter control. The first is the relay supply system. This is a voltage doubler circuit designed to give 12 volts for the relay from the 6-volt supply. The value for C3 should not be decreased below the value stated as its reactance would be too high, causing less than the 12 volts to be developed. The other is the value of C1. This should be kept as low in value as is consistent with low hum and no motor-boating. If this is too large, a squeal will most likely be heard on the changeover from transmit to receive or vice-versa.

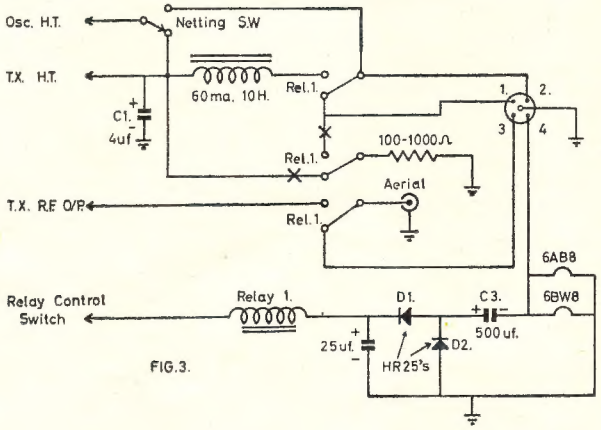

FIG.3.

If this cannot be overcome and you have a spare set of changeover contacts on the relay, they can be arranged to short out the high tension line of the section not operating at the time. This should be a short through a low value resistor, and not a direct short, or you will find the relay contacts rather burnt after a time of operation. These changeover contacts for the shorting are shown already in Fig. 3 and are the ones with the "X" in the leads to them. Of course this can be left out if yours is only a d.p.d.t. relay, and in any case they may not be required, depending on the particular set.

GENERAL COMMENTS

Well that has described the equipment. Simple isn't it? 160 metres is the easiest band to get on without exception. It is an ideal band on which to try antenna experiments. Small aerials do work, I believe that some of the chaps are working on some shortened 160 metre aerials, results and descriptions I believe are to be put in "A.R."

As yet I haven't tried mobile work on this band. John VK3AFU has tried mobile operation and the results he has obtained have been most encouraging. Range in excess of 25 miles with no fading or skip are being achieved regularly. Mobiles for this band would be simple to build. A transmitter similar to the one described in August, teamed with a car radio, would be an ideal set-up. The car radio could be altered as per the ways mentioned for mantel sets. If an old vibrator type car radio could be obtained, so much the better. The vibrator power supply could be made to supply the high tension for the transmitter in much the same way as described for modifying mantel sets. The aerial coil in the car radio, if it is to be used solely for 160 metre work, should be removed and replaced with a coil with a low impedance primary winding. An ordinary broadcast band coil could be suitable with the slug wound out or a few turns removed from the secondary winding. As these are wound with Litz wire, be careful to solder **all** strands.

One interesting thing about mobile on this band is the simple methods that are effective in suppressing the ignition noise. The usual coil and generator by-pass capacitors and the suppressor resistor in the coil h.t. line will, in most cases, make the vehicle "quiet". A suppressor in the coil h.t. line should only be put in where normal wire cored h.t. line is used. Where radio resistance cables are used, no suppressor is needed in this lead. For more elaborate suppression methods, should they prove necessary, the A.R.R.L. Mobile Manual and the "CQ" New Mobile Manual are recommended.

Results on this band are good, signals are heard from VK2-3-4-5-7 and many of these have been worked on low power both by myself and others. Trans-Tasman isn't unknown. The ZL allocation isn't the same as here, being 1875-1900 kilocycles.

Well chaps what about it? Dig out those old receivers, soldering iron and a few bits and pieces and get yourself started on this first class band. I hope I'll have the pleasure of working you soon on 160 metres! ●

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SOME NOTES ABOUT STORAGE BATTERIES

WNG.-CDR. C. G. HARVEY, R.A.A.F., VK1AU*

HOW many Amateurs remember that a car battery is not only an electrical device, but also a chemical contrivance? In its common lead acid form it consists of cells, each comprising positive and negative plates immersed in a solution of sulphuric acid and water. The plates are made by pasting oxides of lead into a lead alloy framework. They become active when the first "forming" charge is given to the battery in the factory, when the active material in the positive framework turns into lead peroxide, and that in the negative frame becomes more porous and spongy. Both "plates" are reasonably porous so that the electrolyte can penetrate.

As long as the battery remains fully charged, the sulphuric acid component of the electrolyte stays with its companion water outside the plates.

As the battery discharges, the acid leaves its water, and penetrates the active material of the plate, forming a temporary lead sulphate. When the battery is fully discharged, most of the acid has left the electrolyte so that a measurement of its specific gravity would show that it was mostly water, whose hydrometer reading would be 1.000.

You can see that it is active material in the plates that represents battery power, released by the flow of sulphuric acid during discharge. Shedding of this active material from the plates, whether due to bad design, shoddy manufacture, or electrical, mechanical or chemical abuse, will cause a loss of power. Reputable manufacturers go to considerable trouble to produce a plate in which the active material is locked, so as to resist the shedding caused by gas bubbles and mechanical expansion. The object is solely to retain the material in the plates and not at the bottom of the case, for as long as possible, for when shedding occurs the days of the cell are numbered.

Just as one shoe often wears out before the other, so often will one cell in a battery prematurely fail. The cause of shortened life is not hard to find. Although most cases of failure are chemical, some are mechanical, causing internal shorts or high internal resistance.

By far the most common cause of premature failure is unintentional abuse through lack of proper care. Lead sulphate formed in normal useage is readily removed by regular charging, however, leave the plates stand in a discharged condition or continue to operate a partly discharged battery, and the sulphate becomes harder, denser and eventually crystalline.

An area of hard sulphate cannot be removed by charging, with the result that the whole of the active area of the plates is no longer available, and your battery's capacity is reduced, permanently.

* 16 Lynch Street, Hughes, A.C.T.

Another common cause of permanent damage arises from overcharging, which by producing heat and violent gassing evaporates water, and so exposes the tops of the plates. Exposure alters the chemical structure of the tops of the plates which never return to their original state, even if water is subsequently added. This area now acts in such a way as to attempt to discharge the remainder of the affected plates and ultimately the battery will fail to hold its charge for long and is then usually credited with being "worn out" prematurely.

Heat needs to be watched for two reasons. Firstly, high temperatures tend to soften active material, particularly when the electrolyte specific gravity is high. The gassing which occurs towards the end of the charge is then able to erode this relatively vital component easily. Most manufacturers therefore recommend about 110°F. as the maximum temperature during charging.

Another problem with heat concerns the accuracy of measurement of specific gravity. Battery electrolyte strengths are usually specified as being taken at 70°F. Any variation from this temperature requires that the hydrometer be corrected by 0.001 for each 2½ degree temperature difference from standard. Thus on a hot day, the electrolyte is "stronger" than the hydrometer shows.

Theoretically, VK7s should find a fully charged battery reads about 1.250 whilst our Capricornian VK4 friends should measure values of only about 1.220.

Looking at it another way, a 20 degree temperature rise will tickle up a partly discharged battery as much as an overnight 1 amp. charge!

BATTERY CAPACITY AND DISCHARGE RATES

It is sometimes assumed that measuring the specific gravity of a battery is the only scientific way to establish its condition. This is only partly true, and can be misleading unless it is also recognised that the battery's capacity for work can only be established by electrical means. To recapitulate, the principal cause of premature old age in a battery is loss of active material on area in the plates, either by shedding or by being covered by hard sulphate.

There is also a secondary cause, oxidisation of the grid framework of the positive plates. This is brought about by the decomposition of the water in the electrolyte during charge, into oxygen and hydrogen. Oxygen is now the villain of the piece, as apart from creating an explosion hazard, the hydrogen is harmless. The excess oxygen causes the positive plate framework to rust away relatively quickly and is a frequent cause of batteries wearing out.

Now, any discharged battery, whether "worn-out" or only in a low state of charge will register a low value on a hydrometer (because the acid in the electrolyte has gone into the plates). The fact that the specific gravity will again rise during charge simply means that some acid has been returned to the electrolyte.

However, note that if half the area of the plates in a battery were affected by fixed hard sulphate, they would for all practical purposes be "dead", and despite an increase in specific gravity reading after charge, the battery capacity would be no more than half its original capability.

Consequently, unless of adequate capacity originally, it might now be unable to do its normal job of starting a stiff engine properly.

One method of checking an ageing or suspect battery is to allow the battery to stand for 24 hours after a full charge. If its SG drops more than 10 points, it's reasonable to assume the battery is not going to hold its charge long.

This method is time consuming and can be confused by temperature changes, so it is now more usual to apply a high discharge rate electrical test which will show the voltage to which the battery drops under normal heavy load.

As there is much confusion about battery ratings, it is important to realise that a 100 ampere hour battery will not deliver 100 amps. for one hour; in fact, it would not even give 50 amps. for 2 hours before its terminal voltage dropped drastically.

This is because the actual capacity of the battery is not a constant, but varies considerably with the rate of discharge. The capacity given for most batteries is the number of ampere hours available from a fully charged battery, which is discharged to a stated voltage, at a uniform rate over 20 hours.

Thus a 100 ampere hour battery will generally give only 5 amperes for 20 hours. This discharge rate would bring a 12 volt battery steadily down to 10½ volts in 20 hours.

Sometimes a rating for 10 hours is given and in this case a 100 A.H. battery would supply only 10 amperes for 10 hours.

Note, however, that sometimes a battery is also given a "cranking rating," which is a short term rating such as 100 amps. for 20 minutes, during which the voltage would drop to 9.

Obviously then, for mobile or field day activities, discharge rates in excess of 10 amps. demand adequate amp. hour ratings and re-charging facilities.

To recharge a battery to its original rating will require about 20% more ampere hours than have been taken out of it, but surprisingly enough, the high discharge rate incurred in starting engines and dynamotors are less troublesome in respect of battery life than prolonged useage of lamps and power supplies, etc., which regularly discharge the battery to very low voltages.

This is because a start taking say 200 amperes and occupying 3 seconds

amounts to only one-sixth of an ampere hour. This can be replaced by the average automotive generator in about 1 minute; allowing for losses, it should be possible in daylight running to put 2 ampere hours back into a battery in about 12 minutes running.

Reputable battery manufacturers say that wear and tear on a starter battery is not brought about by high discharge rates, but by the often haphazard recharge used to restore the battery to its fully charged state. They claim that good batteries can be discharged at the greatest rate the associated cables will stand without damage and that even at these rates, recuperation will occur rapidly providing the maximum rates are applied intermittently.

The reason for this is that a battery is protected when subjected to a near short circuit because the acid cannot diffuse into the plates quickly enough to maintain a very high rate of discharge. Additionally, soft sulphate immediately forms, increasing the internal resistance of the cell, thereby restricting the current flow to safe values.

On the other hand, long slow discharge rates denude the electrolyte of all its acid, allowing lead hydrate to permeate the pores of the plates and separators, leaving sulphate coatings which can be very difficult if not impossible to eradicate.

Perhaps Grandpa's "old blooper", with its 201As, horn speaker and all, had the right idea, as an essential component on nearly every radio table in the thirties was an "A" battery and a trickle charger.

SOME COMMON FALLACIES

"Never make a practice of operating the starter with headlamps burning at the same time," so goes the instruction in some car handbooks, usually with the pious statement that "this puts too great a strain on the accumulator." To quote a well known battery maker, "Who says so?" Examination of the appropriate curves will soon show that an increase in discharge rate from 100 to 110 amps only drops the terminal volts a tenth of a volt! and guess what, it's the same at 200 amps—if your battery hasn't been poisoned by sulphate and neglect!

"Boiled water is just as good as distilled water." Don't you believe it. The effect of boiling is to concentrate the impurities. For instance, if a water sample originally contained 3 parts chlorine to 100,000, and it was boiled until half the sample had evaporated, guess what—the residue would contain 6 parts!

Remember that no source of natural water can be given a permanent certificate of purity, and that in some communities one must be on guard for periodical chemical treatment of the town water supply! For that matter, it is not unknown for analyses of distilled water to show contamination, often by chlorine. Clean pure water is infinitely preferable to **impure** distilled water, but in the absence of an analysis, beter stick to a reliable commercial brand of distilled water.

"How Often Should The Acid Be Renewed?"

It seems impossible for some people to credit that sulphuric acid does not weaken or lose virtue by ageing, and that it does not evaporate. Thus the maker's instructions say clearly, **add clean pure water only, never acid.**

"This Battery Will Not Sulphate"

If any lead acid battery is tested during discharge, it will be found that there is a gradual drop in the specific gravity of the acid. If this is so, where has the acid gone to? It has gone into the plates, but it has only done so by combining with the active material as lead sulphate. Thus if there is no sulphation, the cell cannot function.

"When Charging It Is Necessary To Keep The Current Constant"

Not so. Up to the gassing point, and about 110°F., the rate is practically immaterial. After that, it is necessary to keep the rate down to minimise "shedding", caused by convection and violent gassing.

"A Battery Is Short Circuited When Submerged In Water"

Not necessarily so. Absolutely pure water is an excellent insulator. Even when impurities are added to river water, the resistance across the battery terminals would be much too high to affect its performance. The specific gravity of the electrolyte is heavier than that of the water so that there would be no immediate diffusion of the river water into the electrolyte. Foxes in all States, bar VK3†, take note! ●

† The Maribyrnong River is believed to have concealed at least one Fox's Battery in recent years.

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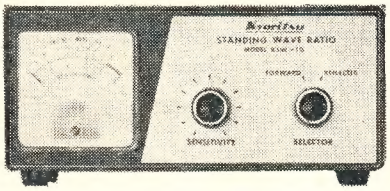

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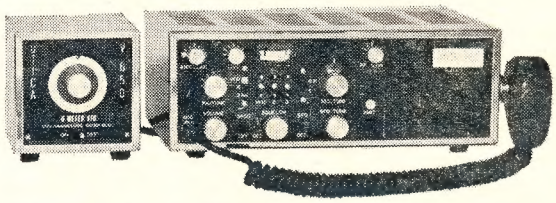

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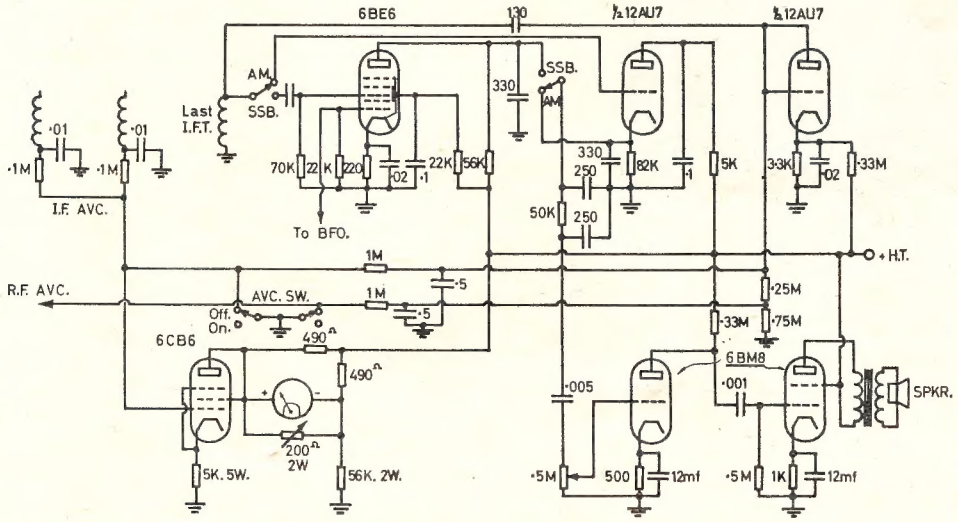
Modifications to the AR7

H. A. BEHENNA, VK5BB*

ALWAYS wanting a second receiver, and one that lent itself kindly to experiments, I was fortunate to procure an AR7 fairly cheaply. Not wishing to alter the original receiver, and with interest mounting toward s.s.b., this looked the answer to it all.

The AR7, much modified on purchase, looked OK, but on being switched on was certainly a doubtful quantity.

With the aid of the scope iron all was removed back to the second r.f. stage. Starting with the converter, this



was changed to a 6AE8, being slightly better than the 6K8. Next, a strip of the original chassis was removed, which previously held the i.f. sockets, etc., and a new piece of aluminium holding the second r.f. (12AU7) and the 6BE6 was re-bolted over the hole caused by the said strip, being removed.

A suitable socket was placed in the original power input hole to take the leads from the power supply which was kept exterior.

The 6U7s were changed to EF39s, both in the r.f. and i.f. stages, and the circuitry wired. The 6BE6 acting as the product detector, half the 12AU7 as the infinite impedance detector, the other half as the a.v.c. amplifier. The 6CB6 as a triode and S meter tube and the audio driver and output a 6BM8. You will find plenty of space left to locate the 6C4 b.f.o.

Upon switching on I found it worked first up and apart from the odd dry joint, etc., and adjustment of the S meter, we were in business.

When I say it worked, I must admit that considerable time was spent on the product detector input voltages, to get the s.s.b. sounding right. Having the second receiver, I decided to go for the bandspread, so very helpful with the reception of sideband.

I do not use an antenna trimmer because of the very narrow tuning range.

The s.s.b.-a.m. switch is located in the noise-limiter hole.

* 14 Stanley St., Crystal Brook, South Australia.

Should you have one of these receivers or any other type that can be bandspread, then I urge you to try this out, especially if your main receiver has no product detector. You will be surprised and mighty happy. When someone on s.s.b. calls you, you will know just what they are saying.

I have left the b.f.o. circuit out of the diagram, you can suit yourself here.

Please yourself on tube types, because the ones I used I had in the drawer.

Individual circuitry for each stage is standard and can be found in most issues of any good handbook.

Oscillator and b.f.o. are fed from voltage control tube, and a noise limiter is to be added later. ●

☆

OPTIMISM

There is a peculiarity of man's mental make-up which makes him very prone to give himself the benefit of the doubt, when something he wants to do is in question. The fish that got away is always the largest, the 90 miles per hour might just as easily be due to a rather favourable speedometer as to the actual performance, and so on.

Short wave reception is something like that. Everybody at some time or another, who has listened in on short wave has heard a distant station at good strength. He has been thrilled to the teeth over an unexpected purple patch which he struck at 2 a.m. when all sane people were in bed and snoring. He has emerged triumphant, after an hour's frenzied listening, with the call sign of an elusive foreigner.

Next time you meet him, he is full of the tale—how he received the particular station at full speaker strength, loud enough to wake the house, and the quality! Just like a local.

What he means, of course, is that he brought in some static, a fair amount of fading, and so on, but undeniably he did bring in the station. He badly wanted it to be equal in every way to a local, and his natural enthusiasm brought him very near to his objective. This was not deception—it was merely a little optimism.

There is no harm in it at all, except for the dis-service it is apt to render, S.w.l'ing as a whole.

When QSL'ing, always send an honest report, as much detail as possible, be brief and to the point. It is as easy as that.

—Chas. Aberneathy, L2211.

MORSE CODE PRACTICE

The New South Wales Division of the Wireless Institute of Australia provide a comprehensive service for Morse practice. Apart from the nightly Morse Practice Sessions on (approx.) 3550 kc. commencing at 7.30 p.m. E.A.S.T. at 5 w.p.m. and finishing at 8.15 p.m. at 16 w.p.m., there is the Morse Tape Service, which has proved very helpful to those who own or have access to a Tape Recorder. Since the C.w. Tape Service was started early in 1963, 580 hours of Morse on Tape has been sent out to interested parties. Figures at the end of last month were—

New South Wales	284	hours
Victoria	115	„
Queensland	81	„
South Australia	27	„
Western Australia	16	„
Tasmania	10	„
A.C.T.	17	„
New Guinea	30	„
Total hours of Morse Distributed	580	

Included in this total is 199 hours copied on to "Customer's Own Tapes". The majority of it on to 3-inch reels recorded at $1\frac{7}{8}$ i.p.s. Radio Clubs find it better to own and keep their own tapes. Now Morse has been discontinued in the Post Office, chaps are finding it difficult to obtain Morse practice.

The Morse Tapes are on 5-inch reels (1,200 feet) and the recordings have been made at $3\frac{3}{4}$ i.p.s. Two hours of Morse are on each reel. The Service is free to anyone wishing to learn Morse. Each user is asked for 1/6 per tape to cover "out of pocket expenses".

To obtain a tape application should be made to the Education Officer, VK2 Division, Wireless Institute Centre, 14 Atchison Street, Crows Nest, N.S.W.

The following tapes are available:—

Special Tape for "Raw Beginners," Letters and Figures with comments.

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No. 3—One hour at 10 w.p.m., plus one hour at 11 w.p.m.

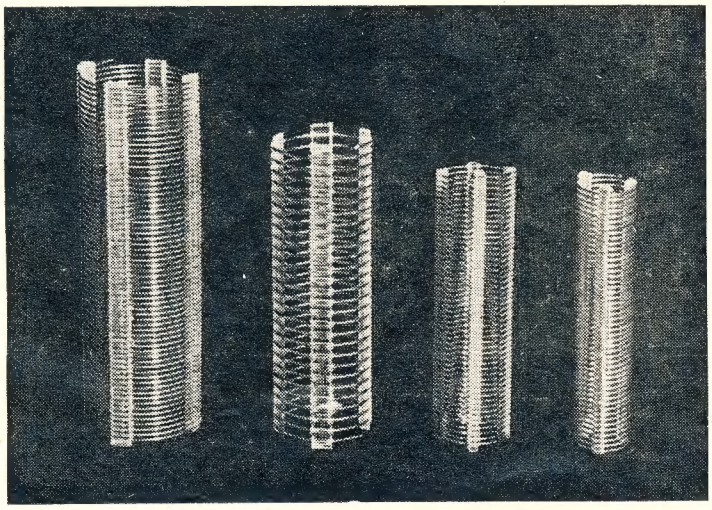
No. 4—One hour at 12 w.p.m., plus one hour at 14 w.p.m.

No. 5—One hour at 15 w.p.m., plus one hour at 16 w.p.m.

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

AIR-WOUND INDUCTANCES



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1-16	½"	16	3"	No. 3003	5/3
2-08	⅝"	8	3"	No. 3006	6/3
2-16	⅝"	16	3"	No. 3007	6/3
3-08	¾"	8	3"	No. 3010	7/4
3-16	¾"	16	3"	No. 3011	7/4
4-08	1"	8	3"	No. 3014	8/5
4-16	1"	16	3"	No. 3015	8/5
5-08	1¼"	8	4"	No. 3018	10/6
5-16	1¼"	16	4"	No. 3019	10/6
8-10	2"	10	4"	No. 3907	13/9

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References: A.R.R.L. Handbook, 1961; "QST," March 1959; "Amateur Radio," December 1959.

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HIGH STABILITY VARIABLE FREQUENCY OSCILLATORS*

Part Two—Assessment of the Vackar Oscillator with Circuits and Values for 1.8-39 Mc.

PAUL HARRIS, G3GFN

HAVING used the Vackar oscillator on a wide range of fundamental frequencies over a number of years, the writer recently undertook quantitative assessment of its performance in order to obtain verification of certain features which had become apparent. Elementary initial tests indicated that a comprehensive study of this oscillator would be well worthwhile, particularly if at the same time optimum values were determined for the Amateur frequency allocations and other frequencies used in Amateur equipment.

Three oscillators were constructed with basic frequencies of 500 kc., 1.25 Mc. and 5 Mc., and each in turn tuned to beat with the MSF transmission on 5 Mc. After a stabilising period of one hour, the beat was adjusted to precisely 1 kc. and displayed on a direct-reading frequency meter. The oscillator under test was then switched off for half an hour. Upon switching on—both h.t. and l.t. at the same instant—the initial stabilising time to return to the 1 kc. beat, initial drift, and long-term stability over a three-hour period were noted. The results are shown in Table 1.

Frequency of oscillator under test	M.S.F. freq.	Harmonic of oscillator	Initial stabilising period	Actual initial frequency shift	Initial shift in fundamental frequency	Initial shift as %	Further drift over 3-hour period	Long term stability as %
500 Kc.	5 Mc.	× 10	10 secs.	250 c/s.	25 c/s.	0.005%	5 c/s.	0.001%
1.25 Mc.	5 Mc.	× 4	10 secs.	400 c/s.	100 c/s.	0.008%	10 c/s.	0.0008%
5 Mc.	5 Mc.	× 1	15 secs.	400 c/s.	400 c/s.	0.008%	25 c/s.	0.0005%

Table 1.

NOTES:—(a) Valve type EF91. (b) All power h.t. and l.t., applied at same instant. (c) H.t. 105v. stabilised by VR105/30.

This table shows the quite remarkable performance of the oscillators tested in respect of the parameters measured. The figures given are the average of three runs on each oscillator, all of which agreed very closely. From the results obtained, upon which no information was given in the original report, it seems likely the tolerances quoted for (a) voltage variation v. frequency change (10 per cent. variation in h.t. producing a change in frequency of 0.0005 per cent.), and (b) frequency change v. temperature (20°C. change in temperature producing a frequency shift of 0.0014 per cent.) quoted in Ref. 2 would be easily substantiated.

Precise measurements of the relative levels of low order harmonics of the three test oscillators showed that the second harmonic was 32 db. down and the third harmonic 45 db. down on the fundamental.

Concerning the test oscillators themselves, it must be stated that they were made mechanically very rigid with only first class components. Furthermore, particular attention was paid the disposition of components and the temperature gradients likely to be encountered by them, especially those directly involved in the frequency determining circuit. Details of this layout are given later.

REASONS FOR STABILITY OF THE VACKAR

Why is the Vackar oscillator so stable? Primarily for three reasons—

(a) The valve capacities—as in the Clapp oscillator—are effectively swamped by fixed capacitors forming part of the tuned circuit, but—unlike the Clapp—also with regard to any changes in **interelectrode** capacities. Due to their arrangement, these capacitors remain sizeable even at high frequencies, so maintaining the stability factor.

(b) The valve operates virtually in class A, so holding harmonic circulating currents and phasing effects to a minimum.

(c) The cathode of the valve is held at earth potential and is in no way associated with the tuned circuit or feedback path.

In the original review of the Vackar oscillator in the R.S.G.B. "Bulletin," and as will be seen from Fig. 6 (see Part 1), mention was made of the fact that the circuit required the use of a two-gang tuning capacitor, and this may well have hindered its adoption. However, it was indicated that a single tuning capacitor could be employed.[3]

Realisation of the ultimate stability of which the Vackar circuit is capable will be given when a twin gang tuning capacitor is used, for then the oscillator operates under balanced conditions. Nevertheless, with the exception of oscillators constructed with basic frequencies **higher** than 15 Mc., and over the limited deviation required for the Amateur bands, a single tuning capacitor has been found entirely satisfactory. The oscillators evaluated in Table 1 employed single tuning capacitors.

With regard to the circuits which are to follow and the values given in their associated tables, it should be stressed that these are those used in practical oscillators constructed to verify calculated parameters, and where corrections were necessary, the corrected value is quoted in the table concerned.

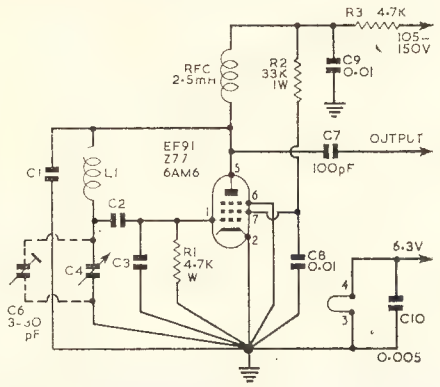

Fig. 7.—Vackar oscillator for the frequency range 1.5-15 Mc. For the values of C1, C2, C3, C4 and L1 see Tables 2 and 3. Trimmer C6 is optional. C7 is a d.c. blocking capacitor. R3 is mounted outside the v.f.o. box.

OSCILLATORS FOR 1.5-15 Mc.

Where the frequency is below 15 Mc. a single pentode type EF91, Z77 or 6AM6 will give excellent results. These types may be replaced by any similar valve with a Gm of the order of 7.5 mA/V. The circuit is shown in Fig. 7 while Table 2 specifies values for fundamental frequencies of 1.8 Mc., 3.5 Mc., 7 Mc., 8 Mc., 9 Mc., 10 Mc., 11 Mc. and 14 Mc.; those for 8 Mc. to 11 Mc. being included for their utility in v.h.f. equipment.

Table 3 details the values of components for use with the circuit of Fig. 7 for any frequency in the range 1.5 Mc. to 15 Mc. The values given are those which will give substantially level output over the frequency bands indicated.

Range	L1 S.w.g. Enam.	L1 Turns c.w.	C1 pF.	C2 pF.	C3 pF.	C4 pF.
AMATEUR BANDS:						
1.8-2.0 Mc.	34	70	556	4700	556	15-250
3.5-3.8 Mc.	28	45	500	2700	300	10-100
7.0-7.1 Mc.	26	30	200	1800	200	10-25
14.0-14.35 Mc.	24	15	100	1000	100	10-35
SPECIAL FREQUENCIES:						
8 Mc.	26	25	200	1800	200	*
9 Mc.	26	20	200	1800	200	*
10 Mc.	24	25	140	1800	140	*
11 Mc.	24	20	140	1000	140	*

Table 2.

For use with circuit of Fig. 7. For Amateur bands 1.8-14 Mc.

All coils wound on 5/16 in. diameter formers fitted with ½ in. long iron dust cores. Winding sense: from foot of former towards top. *Depending on frequency swing required. See text.

* Reprinted from R.S.G.B. "Bulletin," Mar. '64.

[3] "The Amateur Radio Handbook," R.S.G.B., page 169.

COMMON CONSIDERATIONS

Notes which apply to all tables are now in order. The values given for Amateur and special frequencies are those which produce virtually the same output on each frequency within a similar valve group. That is, the output of an oscillator on, say, 7 Mc. will be of the same order as that from any other in that group—the 1.8 Mc. oscillator for example.

It will be noted that only in the case of the Amateur bands is a value quoted for a tuning capacitor. For other frequency ranges the value will have to be experimentally determined according to the frequency shift required.

Range (by adjust. of core)	L1 S.w.g. Enam.	L1 Turns c.w.	C1 pF.	C2 pF.	C3 pF.	C4 pF.
1.5-2.5 Mc.	34	70	556	4700	556	*
2.3-3.3 Mc.	34	45	556	4700	556	*
3.2-4.5 Mc.	28	45	500	2700	400	*
4.3-6.3 Mc.	28	35	300	2700	300	*
6.1-8.8 Mc.	26	30	200	1800	200	*
7.8-11.0 Mc.	26	20	200	1800	200	*
10.5-15.0 Mc.	24	20	100	1000	100	*

Table 3.

For use with circuit of Fig. 7 for general coverage 1.5-15 Mc.

Formers as for Table 2. *See text.

All the coils are iron cored, and with stray capacities of about 10 pF., adjusting the core will bring the oscillator on to the special frequency with the core of the coil concerned set at about mid travel. Adding capacity at C4 will **lower** the frequency by an amount depending on the maximum value of the added capacity. In the case of general coverage coils, the frequency range shown is that over which an oscillator would tune by running the core of the coil from one end of its travel to the other, again assuming circuit stray capacities of the order of 10 pF. For any tuning range the coil is selected which will, by adjustment of its core, tune to the **highest** frequency required. The value of C4 is then determined experimentally to tune the circuit to the **lower** required frequency.

Two types of 5/16 in. diameter formers are available. One is a straightforward type—see Fig. 8—and the other, usually supplied with a screening can and normally used in the construction of i.f. transformers, has a square base fitted with eyelets for wire termination and is threaded for 6BA fixing bolts—see Fig. 12. Of the two types the latter makes coil construction easier, and it has the added advantage that it is available on the surplus market. The length of former required is 1 in. and any excess can be trimmed down with a fine saw.

It has already been stressed that construction and layout hold almost equal importance with the actual circuit used. For this reason precise layout and construction details are provided for both of the circuits given. While these are not the only arrangements which would prove satisfactory, they are those used in oscillators built to check performance and values. In these layouts, account has been taken of the temperature gradients likely to be encountered by components, especially those associated with the tuned circuit.

Figs. 8 and 9 show the layout of the series of oscillators derived from the circuit of Fig. 7, while Fig. 10 shows the general construction of the chassis/box assembly. This is the form of construction used for the oscillators evaluated in Table 1.

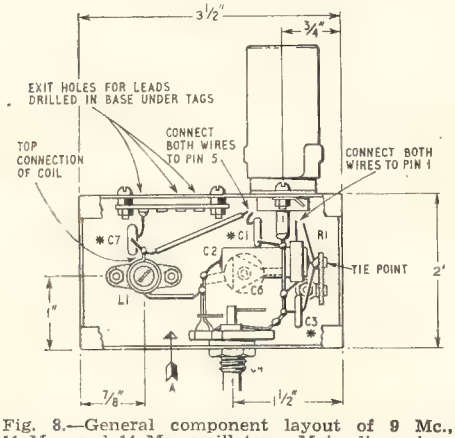

Fig. 8.—General component layout of 9 Mc., 11 Mc., and 14 Mc. oscillators. Main dimensions to be adjusted to allow correct fitting of C4 in 1.8 Mc., 3.5 Mc. and 7 Mc. oscillators. * Vertically mounted.

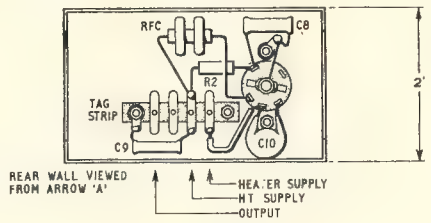

Fig. 9.—Rear wall.

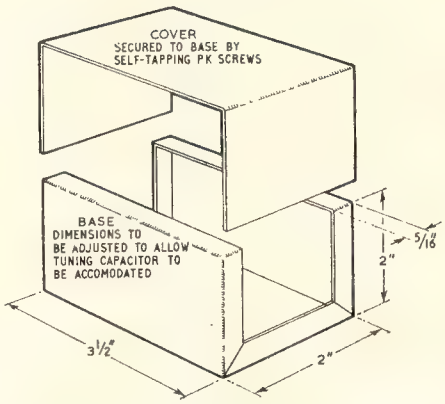
COVER SECURED TO BASE BY SELF-TAPPING PK SCREWS
BASE DIMENSIONS TO BE ADJUSTED TO ALLOW TUNING CAPACITOR TO BE ACCOMODATED
5/16"
2"
3½"
2"

Fig. 10.—General construction of oscillator chassis/box assembly. To be secured to the main chassis by PK screws. Clearance hole to be cut in chassis to allow passage of leads from oscillator. Ventilation holes ¼ in. diameter to be drilled in main chassis directly under oscillator valve position. Material: 16 s.w.g. or 18 s.w.g. aluminium.

OSCILLATORS FOR 14-39 Mc.

Above 15 Mc. a really effective buffer should always be used after the v.f.o. to ensure adequate isolation and freedom from pulling. A cathode follower offers almost complete isolation but at the cost of a slight reduction in total available voltage. Where the Vackar oscillator ciruit is employed, this is usually unimportant due to its high output. A useful arrangement utilises the 6U8/ECF82 in which the pentode functions as the oscillator, and the triode as cathode follower. This particular valve also has the additional advantage that substantially the same layout can be used as for the lower frequency oscillators.

Fig. 11 shows the circuit of a Vackar oscillator, employing a 6U8/ECF82, for

Amateur Bands	L1 S.w.g. Enam.	L1 Turns c.w.	C1 pF.	C2 pF.	C3 pF.	C4 pF.
14.0-14.35 Mc.	22	20	100	1000	100	20, 20
21.0-21.45 Mc.	20	15	68	1000	68	15, 15
28.0-29.7 Mc.	20	10	68	1000	68	20, 20

Table 4.

For use with circuit of Fig. 11. For Amateur bands 14-28 Mc.

Formers, cores and windings as Table 2.

Range (by adjust. of core)	L1 S.w.g. Enam.	L1 Turns c.w.	C1 pF.	C2 pF.	C3 pF.	C4 pF.
GENERAL COVERAGE:						
13.5-19.5 Mc.	22	15	100	1000	100	*
18.75-25.5 Mc.	20	15	68	1000	68	*
25.0-33 Mc.	20	10	68	1000	68	*
30.0-39 Mc.	20	7	68	1000	68	*

Table 5.

For use with circuit of Fig. 11.

Formers, cores and windings as Table 2.

*See text.

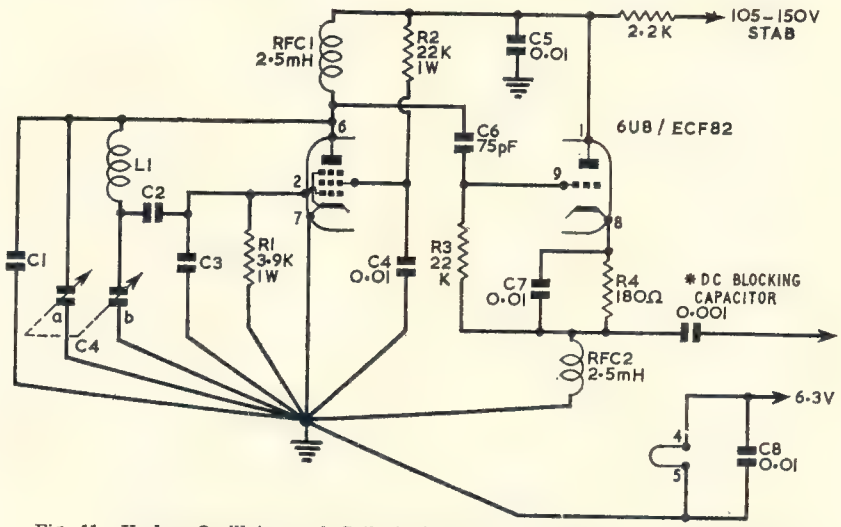

Fig. 11.—Vackar Oscillator and Cathode Follower for frequency range 13.5-39 Mc. For values of C1, C2, C3, C4 and L1 see Tables 4 and 5.

the frequencies of 14 Mc., 21 Mc. and 28-29.7 Mc., and Table 4 details component values. Table 5 provides details of oscillator constants for any frequency in the range 15 Mc. to 39 Mc. The notes previously given on the selection of a tuning capacitor apply to Table 5. Layout and construction of oscillators in this series is shown in Figs. 12 and 13.

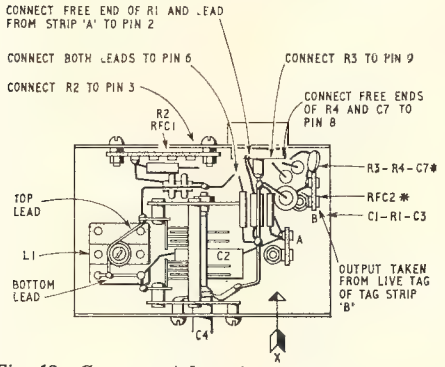

Fig. 12.—Component layout of 13.5-39 Mc. oscillators. * R3, R4 and C7 mounted vertically as is RFC2.

It will be observed that Table 2 and Table 4 both specify values for the 14 Mc. range using the circuits of Figs. 7 and 11 respectively. The circuit of Fig. 11 has the superior performance due to the isolation given by the cathode follower, and this should be employed where stability requirements are critical, such as in s.s.b. applications for example.

KEYING THE VACKAR

As with all variable frequency oscillators, care must be taken if the Vackar is to be keyed directly, especially if keying is associated with the cathode circuit. Above 15 Mc. cathode keying should not be attempted. This is perhaps the weak point of the Vackar oscillator.

Experiments have indicated that, up to 15 Mc., cathode keying is satisfactory **provided** (a) the cathode is held absolutely at earth potential with respect to r.f. by the use of high quality by-pass capacitors connected directly between the cathode pin and the common oscillator earthing point; (b) the heater is by-passed to r.f., and (c) the keying earth return is connected to the oscillator earth point **and not** to some other point on the chassis. This entails the use of a fully insulated jack socket.

The foregoing comments apply mainly to c.w. operation where full break-in facilities are required with the abiltiy to listen through under key up conditions without resorting to f.s.f. For standard c.w. operation, keying of either a buffer/doubler or the p.a. is to be preferred. For a.m. and s.s.b. with vox or fast bk., direct keying of the actual h.t. line to the oscillator is entirely satisfactory.

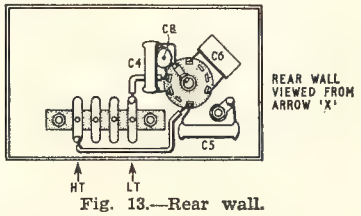

Fig. 13.—Rear wall.

POWER OUTPUT

When designing transmitters it is always useful to know, at least approximately, the power output to be expected from any master oscillator likely to be employed. There appears to be practically nothing on this point contained in any of the standard reference works, and it seems that one either has to make a calculated guess based on previous experience, or live in hope, neither of which seem to be very scientific in this day and age.

In order to further check the performance of the oscillator designs detailed, and to evaluate power output, a simple two-stage driver unit was constructed according to the circuit of Fig. 14. This consists of an EF91/Z77/6AM6 functioning as either a driver or doubler, coupled to a 5763. Table 6 expresses the results of a series of experiments in which the power output of the oscillator—driver/doubler system is shown as grid current to the 5763 through a 22K ohms grid resistor. To make this as comprehensive as possible, the values of C101 and C102 were determined, which produced the usual values of grid current required. As a matter of interest, the details of L_B and the approximate value of C_B are also included.

As would be expected, the smallest difference between the "net" and "loaded" frequencies of the master oscillator coincided with the lowest value of capacity at position C101, particularly in the circuit of Fig. 7. In the case of Fig. 11, and due to the cathode follower, the value of C101 has but little effect on this variation which was, with this circuit, only of a very minor nature.

F in (Osc. o/p. F)o	F out	C101 pF.	C102 pF.	Grid D've mA.	Details of LB and CB (Strays 15 pF.)
OSCILLATOR OF FIG. 7 AND TABLE 2:					
1.9	1.9	5	50	3	LB—90 turns of 34 s.w.g. enamel close wound, ½ in. dia. CB—150 pF.
1.9	1.9	5	25	2.5	
1.9	1.9	5	10	2	
1.85	3.7	10	100	3	LB—75 turns of 34 s.w.g. enamel close wound, ½ in. dia. CB—70 pF.
1.85	3.7	5	25	2.3	
1.85	3.7	5	10	1.9	
3.7	3.7	10	100	4	
3.7	3.7	5	25	3	
3.7	3.7	5	10	2.1	
3.525	7.05	25	200	3	LB—45 turns of 28 s.w.g. enamel close wound, ½ in. dia. CB—30 pF.
3.525	7.05	25	50	2	
3.525	7.05	5	50	1.5	
7.05	7.05	10	75	4	
7.05	7.05	5	25	3	
7.05	7.05	5	10	2	
7.1	14.2	50	100	3	LB—17 turns of 22 s.w.g. enamel close wound, ½ in. dia. CB—15 pF.
7.1	14.2	25	100	2	
7.1	14.2	10	50	1.5	
14.2	14.2	5	100	3	
14.2	14.2	5	30	2	
14.2	14.2	5	10	1.5	
14.5	29	25	100	2.2	LB—7 turns of 18 s.w.g. enamel close wound, ½ in. dia. CB—15 pF.
14.5	29	25	30	1.5	
14.5	29	10	30	1	
OSCILLATOR OF FIG. 11 AND TABLE 4:					
14	14	200	62	3	LB—17 turns of 22 s.w.g. enamel close wound, ½ in. dia. CB—15 pF.
14	14	100	15	2	
14	14	5	10	1	
21.1	21.1	200	62	2.8	LB—12 turns of 18 s.w.g. enamel close wound, ½ in. dia. CB—20 pF.
21.1	21.1	100	15	2	
21.1	21.1	5	10	1	
28	28	200	62	2.9	LB—7 turns of 18 s.w.g. enamel close wound, ½ in. dia. CB—15 pF.
28	28	100	15	1.9	
28	28	5	10	1.2	

Table 6.
Expressing available grid drive in relation to frequency, oscillator circuit, driver function and values of C101 and C102 of Fig. 14.
Oscillator h.t., 105v. stab. Driver VB 250v.

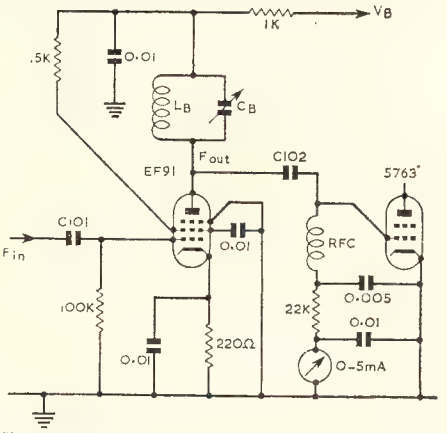

Fig. 14.—Basic driver circuit used to determine available power expressed as grid drive. See Table 6.

In conclusion, it should be stated that it has not been the purpose of this article to write off the Hartley, Colpitts, Franklin and Clapp oscillators, all of which have their applications. Rather it has been to examine closely the whole question of v.f.o. design, to bring the performance of the Vackar/Tesla to the notice of readers, and through the detailed information provided, encourage others to experiment with, and use this circuit which, under present conditions, has much to offer. ●

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YOUTH RADIO CLUBS

For the eye that glances here only occasionally, there should be a reminder of the considerable achievements of the Y.R. Scheme. In about three years of development in VK2, some 40 clubs have been established and 14 A.O.C.P's or L.A.O.C.P's have been gained by club members. To press the point about what can be done, the VK2 Honour Roll is listed below. (Other States, especially VK3 and VK4, with a later start, are on their way to similar success.)

(i) Ian Forrest (Booragul High), (ii) George Brzostowski (Lyneham High), (iii) Roger Davis (Lyneham High), (iv) Vincent O'Donnell (St. Leo's Wahroonga), (v) Phillip Lowe (Epping High), (vi) Harvey Smith (St. Leo's), (vii) Jim Watson (Lyneham), (viii) Susan Brown (Booragul High), (ix) Ross Beckley (Booragul (High), (x) Jan Oosterveen (Westlakes Club), (xi) Michael Macinante (C.B.C., Woolongong), (xii) Doug Williamson (Club Leader, Bass High), (xiii) Ralph Satchell (former Club Leader, Homebush High), (xiv) Paul Goldsbrough (St. Edward's, Gosford).

In general, we have a skeleton organisation, at least, in every State, with off-shoots in India, Malaysia, Christmas Island, and New Guinea. In addition, we have exported the idea to New Zealand and Great Britain, where licence requirements are similar.

There should also be a permanent advertisement for new club leaders. It would be particularly helpful if more club leaders could be found amongst those who are not already working with young people. This is a very important point in the story of serious trouble amongst juveniles. The cultivation of "separateness", either through commercial preying on the money in the hands of teenagers or through the extreme adult selfishness of refusing to have young people as even a small off-shoot of their adult organisation and privileges is probably a bigger factor than is realised.

For present and future club leaders, Bob Guthberlet (VK5OD) has kindly offered to undertake the stencilling of Form YRS/10 "Suggestions for Club Leaders and Instructors", an 8-page collection of suggestions gleaned from various clubs. To obtain this booklet, send Bob (a) 8d. stamped, addressed large return envelope (full or half foolscap); (b) extra 5d. stamp enclosed in your forward envelope to help with the cost of stencils, etc. On your return envelope, put "printed matter only' on top left hand corner, print YRS/10 in bottom left hand corner. Address your forward envelope to Rev. R. C. Guthberlet, P.O. Box 89, Mount Barker, South Australia.

All States should notify their State Supervisor now if they have an entrant in the Morse Code Championship for members of Y.R. Clubs. State Championships in over 15 and under 15 grades should be found in time for a Commonwealth Championship in the middle of December.

VK2 news plentiful because of VK2 Newsletter No. 1, edited by Jim Webster at Birrong High. New club at Bankstown Boys' Rally (church group). Very first Y.R.S. member to pass Inter. Certificate was Greg Dunne (3rd year at Kingsgrove High) with 70 and 92 on written papers and a very well-made superhet receiver, an oscilloscope, and a two-valve amplifier as practical projects. Elementary pass (89%) to Geoff McLeod (Kingsgrove). Junior passes to James Poole (88%) at Kingsgrove High. Mr. Freeman, of Australian Radio College, has kindly offered a Scholarship to Y.R.S. members. To be eligible, the candidate must hold Intermediate Certificate (at least this year). The award will give a **free** course in Radio Servicing, either by correspondence or personal attendance. This should raise some keen competition. Helpful donations of s.w. receiver from Mr. G. Kinnear, of Pymble, and five traded receivers from Mr. Moulang, of Bankstown.

From VK3, Dave 3ZMX writes details of publicity in daily papers for the very youthful stalwarts of Gowrie Park State School, resulting in helpful donations of some assorted gear and enquiries from a local Scout Group. As well as looking after his active A.P.I. Club, Dave is going to put on a display at Bundoora Christian Brothers.

Other news is scarce, but it's the end of a tiring term for teachers (disbelievers are welcome to try). 7EB has been ill and we are all busy anyway. Hope to hear from you all when you can manage it. 73, Ken 1KM.

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Publications Committee Reports . . .

Until the 15th September all incoming notes for "A.R." have been published, and in addition correspondence, other than that published in this issue, was received from the following:

VKs 3WK, 5WV, 1LF, 3XQ, 5EK, 5RG, 4ZAZ, 5UB and 6ZDM, in addition to letters from K. A. Harding, C. G. McCue and L3102. The latter was forwarded to F.E. for their attention. Technical articles were received from: VKs 3UJ, 2ON, 4DA and 6HH.

As negotiations have been concluded with the P.M.G., the new edition of the Call Book is now being prepared and a new cover has been introduced with, as someone said, a "Pansy" pink colour. My, that man seems to get into everything.

The new wrapper for "A.R." has proved very satisfactory in so far that several "A.R's" were returned to P.O. Box 36 as being incorrectly addressed and the correct address has been sent to the mailing service for their attention.

Readers are again reminded that all W.I.A. members must notify incorrect mailing addresses direct to their Divisional Secretary. "A.R." should only be notified if the reader is a direct subscriber.

All notes for "A.R." must be addressed only to P.O. Box 36; if they are sent to any other address, delays will occur in publication.

SWL

Sub-Editor: Chas. Aberneathy, WIA-L2211
30 Urunga Parade, Miranda, N.S.W.

Well chaps, the R.D. Contest is over once again, and by mail received, band conditions were not the best, but large scores were accounted for. The best frequencies appeared to be in this order: 7, 14 and 3.5 Mc. with nil reports on 21 Mc. A good variety of calls were present as during my short period of listening, heard on 7 Mc. all VKs from 1 to 0, so the final result should be very interesting.

A WILL AND A WAY

Today, as it was in the past, many Amateurs first started in radio via the ranks of the Short Wave Listener. When I was asked to provide a few lines for this page I wondered what would be best. Since then I came across a practical case of S.w.l'ing. By the nature of my work I travel many thousands of miles each year. In the country one Sunday morning, I wanted to check up on the Divisional broadcast, and when the time came there was not a tree for miles to "string an aerial to", and the only alternative was a fence with a few rusty strands of barbed wire. I connected a jumper between the receiver and this rusty long wire—the result, best interstate DX for months. I ended up missing the broadcast because I came across openings unheard of for some time. The antenna would not have averaged more than a foot from the ground.

You might ask, what is the interest in that, it's no doubt been done many times before. True, but it is an example of what Amateur Radio is, the willingness to try anything to find results for ourselves. If you develop an enquiring mind early in your s.w.l. life, then it continues with you if you obtain your ticket. Tim, L2052/VK2ZTM.

FREQUENCY AND WAVELENGTH

Sometimes, the newcomer to radio finds difficulty in coping with the relationship between frequency and wavelength. To understand these terms properly one must bear in mind the fact that radio waves travel at the speed of light. This is approximately 186,000 miles per second.

To use the common example, if you drop a stone into a pond, ripples radiate outwards in a regular circular pattern. Each ripple represents a temporary disturbance of the water pressure. Think now of an electrical disturbance in space and you can form a mental picture.

The physical distance between two points of maximum voltage stress of the same polarity is called one wavelength. In fact, we can be more general and say that wavelength is the physical distance between any point on a particular wave and the corresponding point on the next wave.

Now remember that radio waves travel at a speed of 300,000,000 metres per second. If a particular signal has a wavelength of say 300 metres, then it would take just one-millionth of a second for one wave to pass a given point. Looking at it the other way, we could say that one million 300 metre waves would pass a fixed point in one second. Being slightly more technical, we would say that a 300 metre radio wave has a frequency of 1,000,000 metres per second. (To be continued.)

NEW SOUTH WALES

Attendance at our monthly meetings has increased considerably, and we are fortunate also in having a steady flow of new members joining our group. It is indeed a pleasant sight to see new faces each month, and we trust that they shall continue to come along. The shield which is to be held for twelve months by the winner of the VK2 receiving section of the R.D. Contest is ready and when the result is known, will be inscribed and forwarded to that lucky person.

From the south-west comes word from Jerry L2229, who is stationed at Wagga Wagga. Hope you found the literature of some value OM, and pleased to welcome you to the page. How about telling us of DX conditions in that area?

Norm L2251, now living in Brisbane, is up and about again after a term in hospital. He has moved to a new QTH and is busy getting set up. He hopes to be soon ready to participate on the DX front, and also to have his L4 number in the near future.

Russell L2262 would like to hear of any S.w.l's who are interested in the Jamboree-on-the-Air, as he is organising in his district and would like to arrange skeds with other members who are Scouters. Russell's QTH is 91 Smart St., Fairfield, Sydney, N.S.W.

Ray L2287 is this month doing the Morse exam. for the second class ticket, and like many of our members is in the throes of other exams., hence the lack of listening.

VICTORIA

Greg L3138 sat the full 24 hours in the R.D. Contest to net a good score. During August he received QSLs from OA1, VR1, EI4, GI3, ZD7, VS1 and VK4JQ. Thanks for your suggestions re the page. Congrats on your win in the R.H. Contest.

Lloyd L3141: QSLs received for the month: 7Q7, 5Z4, 6O1, VP9, EA7, YV5, W0, JA6, HK3, DL5 and W6/MM. He is a member of the Long Island DX association and has promised me some info on same, so as I can pass it on to other S.w.l's.

Noel L3101 participated in the R.D. Contest and compiled quite a nice score. Many thanks for letting me see that letter from South Africa. Yes, we are indeed fortunate to live in a land such as ours. Local interference seems to be a problem that we all share, hi.

Last but by no means least, Eric L3042, has just returned home after a very nice holiday in VK4, during which time he travelled 3 500 miles. Sorry to have missed you OM, but maybe see you early in '65. Eric has 165 QSLs from ships. We would be interested to know if any other S.w.l's. have any such QSLs? Latest cards to hand: FB8, FK8, FO8, OK1, UQ2, VQ8, VS1, ZS6, etc.

QUEENSLAND

Another member enjoying the annual break is Lew L4020, whose other hobby is deep-sea fishing, and naturally is doing a fair bit of just that. Thanks for the crystal ball chart OM, I may use it in the page one of these months.

A newcomer to the L4 section is Noel L4034 who holds the position of State Headquarters Commissioner for Senior Scouts in VK4, which must be very time consuming indeed. Noel uses an HE30 rx with a temporary antenna, and like quite a few others is going to erect a better one at a later date, hi. Thanks for your nice comments re the page.

SOUTH AUSTRALIA

As will be noticed we now have two contributors from VK5. This is very pleasing indeed, and who knows, next month we may have a few more, well let's hope so. Our latest addition is Brenton L5069, who uses an AR8 rx with a long wire aerial. Recent loggings were KA2, WV6, W7, XE1 and KC4 on 14 Mc. During the v.h.f. season you will find the 6 mx band very interesting. I hope that very nice score in the R.D. Contest brings you an award.

Alan L5065: I trust by now that you have received those two diagrams from Sid L2258, who had the matter in hand. Pleased to know that you enjoyed the article in August "A.R." Latest QSLs to hand: KZ5, SM3, VE6 and ZLs.

WESTERN AUSTRALIA

From Peter L6021 comes the usual West-side story of plenty of activity. This lad is sure a go-getter so far as s.w.l'ing is concerned. In the recent R.D. Contest he sat at the dials for 21 hours to clock a very good score. These points were compiled from 80, 40 and 20 mx only, as 15 was out, which makes it a very good performance indeed. Recent cards to hand: VS5, VS1, ZC5, 9Q5, DL7, DL5, OH2 and OK3. Stations heard during the month are too numerous to print, but I counted 50.

Articles by members for our page would be welcome, so if you have something of interest to S.w.l's just send it along.

On the DX ladder, appear a few members who have not sent any progress scores for some time. If these are not to hand for the Nov. issue, their names will be deleted.

I would appreciate members' views on a scheme of S.w.l's exchanging letters. Much good can come by corresponding with other chaps, not only in our country, for as I feel if this idea is given support we can seek overseas S.w.l's to participate also.

Sometimes the longest way round proves to be the shortest way home, and the man of experience and wisdom is the one who finds the quietest, simplest and safest way.

That's about it for this month. I would like to thank Tim 2ZTM for his article, and those members who wrote to me. 73, Chas. L2211.

S.W.L. DX LADDER

	Countries		Zns.	S.s.b.		W
	Conf.	Hrd.	Conf.	Conf.	Hrd.	Stat.
E. Trebilcock	284	292	40	—	—	50
D. Grantley	124	281	38	20	124	35
P. Drew	121	241	32	66	203	29
A. Westcott	93	159	31	9	107	11
M. Hilliard	89	241	33	35	169	12
M. Cox	84	232	30	51	163	21
G. Earl	69	150	31	48	134	7
C.Aberneathy	63	104	33	—	—	14
N. Harrison	56	172	31	22	64	37
L. James	51	144	24	38	122	10
I. Thomas	42	139	20	16	97	14
R. Beckley	27	47	19	—	—	—
A. Raftery	21	125	15	8	8	3
R. Oats	9	26	8	—	—	—

☆

NEW CALL SIGNS

JUNE 1964

VK2YD—T. D. Withnall, 44 Banks St., Padstow.
VK2AYV—R. L. Thornton, 23 Ebley St., Bondi Junction.
VK2BAA—G. S. Radford, 9 Loftus Rd., Pennant Hills.
VK2BAC—A. H. Beusch, 68 Charlotte St., Ashfield.
VK2BAH—L. W. Hodgetts, 183 Liverpool St., Sydney.
VK2BGB—G. B. Burton, 41 Greene Ave., Ryde.
VK2BGG—G. J. Griffiths, 62 Polwood St., Kempsey.
VK2BJO—J. Oosterveen, Lot 4, Gosford St., Awaba.
VK2BJW—J. L. Webber, 56 Shortland Ave., Homebush.
VK2ZDY—B. B. Chatfield, 5 Kapooka Place, Cooma North.
VK2ZFV—C. F. Veitch, 131 Burwood Rd., Croydon Park.
VK2ZGG—A. J. Gray, 37 Culver St., Kogarah.
VK2ZKD—L. J. McHugh, Married Qtrs., 402 Sigs Regt., Wallgrove Rd., Wallgrove.
VK2ZKO—A. N. Nikotin, 49 Waverley St., Belmore.
VK2ZLF—R. Soulie, 17 Jane St., Randwick.
VK2ZLL—P. J. Lowe, 3 Hockley Rd., Eastwood.
VK2ZPA—P. A. Ament, 46 Sinclair St., Crows Nest.
VK2ZXD—G. M. T. Clarke, 2 Beaconview St., Balgowlah.

VK3GP—G. A. Macfarlane, Ormond St., Bairnsdale.
VK3UO—J. O. Williams, 25 Wentworth Ave., Sandringham.
VK3WV—J. E. Walker, C/o. O.T.C., Fiskville, via Ballan.
VK3ZBQ—B. V. Shields, 72 Lloyd St., Strathmore.
VK3ZCF—H. Schroder, Nantilla Rd., Clayton.
VK3ZST—R. S. Tucker, 40 Panoramic Rd., North Balwyn.
VK3ZTY—J. T. Young, 55 Salmon Ave., Essendon.

VK4DS—De La Salle College Radio Club, Scarborough Rd., Scarborough.
VK4JV—J. A. Hazzard, 30 High St., Bundaberg.
VK4MS—M. S. Johnson, Station: Willis Island; Postal: 63 Bombard St. Mt. Pleasant, West. Australia.
VK4TE—T. Smith, Station: Willis Island; Postal: 11a Valley Pde., Glen Iris, Vic.
VK4ZJH—D. J. Hutchins, Lake Manchester, C/o. Mt. Crosby P.O., via Ipswich.
VK4ZRD—K. R. Davis, 346 Henson Rd., Salisbury.

VK5NY—R. S. Bowman, Beau View, Parrakie.
VK5VE—W. N. Thomas, 15 Keevil St., Elizabeth North.
VK5ZE—A. E. Cooling, 20 Blencowe St., Elizabeth Grove.
VK5ZEX—G. E. Bolt, 22 Birdwood Tce., Plympton.

VK6DT—R. D. Trickett, 52 John St., Cottesloe.
VK6LY—R. F. Crowell, 98 Dalkeith Rd., Nedlands.
VK6MW/T—W. H. Murden, Flat 14, 118 Terrace Drive, East Perth.

VK9GZ—Zepczyk (Rev. Fr.), Catholic Mission, Kavieng, N.G.

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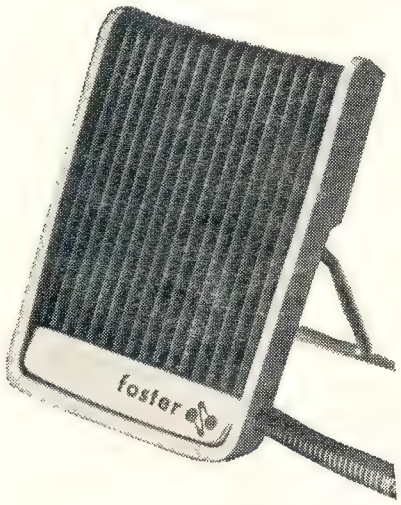

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Sub-Editor: H. A. BEHENNA, VK5BB,
14 Stanley Street, Crystal Brook, South Aus.
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB-EDITOR

According to all reports we have now passed the minimum and we start the slow drag towards the anticipated maximum. Whilst we may not be in the position to appreciate this for some time, it will do our egos the world of good. Due to not feeling the best here over the last few weeks, I must admit that I have not listened with the usual keenness.

160 Metres: No reports.

80 Metres: Some activity from the European area, Russian and Asian districts. Mostly on c.w., but sometimes they are hard to work because of QRM and possibly jamming stations. Best time to try is 2100z.

40 Metres: Nothing to report in a.m. hours local time, but from approximately 0600z G and GI can be worked on s.s.b. Odd South Americans can also be worked. 0900z W, VE, KH, KJ and KC are there for the taking. 1000z brings JA, VS and some of the smaller islands to the north. It was pleasing to hear this month some of the boys saying that they had given this band a go and most were jubilant as to the stations worked and reports received. Try it, you too may be surprised—a.m. or s.s.b.

20 Metres: Still the old reliable band, but appears to be ready to go through a change. Not a great deal in the a.m. hours local time, however at 0430z some contacts with the South American continent are available. Skip shifts as usual to W, VE and thence KL7 to JA etc. Some evenings and on the improve is the Europeans around 1130z and perhaps a little later. 0600z the African quarter can be worked on most days with signals of varying strength. Late in the evenings local or approx. 0130z W can also be worked. Whilst just prior the islands to the north of VK can be heard although this varies each night. Ever noticed just lately how selective the skip is to a particular area, even with stations only a hundred or so miles apart?

15 Metres: A few JA stations are showing up in the a.m. hours VK time, plus a few W signals during p.m. hours. This band should show an improvement in the next few weeks.

10 Metres: Nothing to report.

ACTIVITIES

VK2AI and VK2AAK heard on Lord Howe Island on 80, 40 and 20 mx, causing some pile-ups and confusion on 14270 kc.

Bill VK2XT is going on holidays to JA, calling in to Hong Kong and ZL on the way home. Bring back some goodies, Bill.

France VQ8AM intends operating from Rodriguez Islands as from 14th November. He has Heathkit gear and will operate a.m., cw., s.s.b. He, however, has a problem in that he cannot locate a 110v. alternator; anyone help? QSLs go to home address.

By the time you read this, the 1964 Scandinavian Contest will have been completed, i.e. c.w. is held Sept. 19-20 and phone 26-27. For checking all logs will go to Karl O. Friden, SM7ID, Box 2005, Kristianstad 2, Sweden. A quick summary of the 1963 results were as follows: c.w. single operator, SM5BAU, 116,685; multi operator, OH2EW/0, 202,160; phone single operator, OH5SM, 9,400; multi operator, OH2QV, 5,036. In the non-Scandinavian entries, c.w., s.o., OK1AGI, 3,838; c.w. m.o., 3,900; phone s.o. DJ5BV with 320, phone m.o. DL0NR/P, 512 points. Final scores were: 1, S.R.A.L., Finland, 1,701,697 points; 2, S.S.A., Sweden, 974,000; 3, N.R.R.L., Norway, 235,581; 4, E.D.R., Denmark, 155,551.

YA4A is heard on 14110 kc. c.w. from 1700-1800z.

CR6GO from Angola also on 14012 kc. c.w. around 2200-2300z.

From Perim Island, VS9PGM is on 14050 kc. at 1630z.

YK1AA is on 14 Mc. a.m. from 0300-1100 and 1300-1500z, especially Fridays.

7Q7PBD, from the newly named Malawi, is active on s.s.b. on 14125 kc.

FH8CD from Comores Island has been heard from 1500-1700z on 14250-14300 kc.

7G1L, 7G1RX and 7G1EZ are all active from Guinea on c.w. at 1800-2200z.

Gus has left after many rumours for Europe and Asia. He intends to visit Angus HZ2AMS and they both hope to DX-pedition to YI.

Should you work LX3MZ, QSLs should go via DJ9SB; 5H3HZ via Box 260, Mbeya.

The top c.w. men of the moment in Russia are reported to be UA3AW, UA3CT, UA3AN. K7WQO is 11 years old, resides in Arizona, and has one year of operating to his credit.

EP2DM at Iran is very active on 14075 kc. c.w. and can be heard around 1330z. Operator is Javad who had the misfortune to lose his quad antenna in a recent storm.

5H3JR operates from a mission station in Nyambiti Mwanza, Tanganyika, and is American W3EHG.

ZE2JA currently active on 21 Mc., is located at Borrowdale in Southern Rhodesia, and is operated by Bill Leyland.

K4CSY, from which transmissions on 80-10 mx come, is aboard the submarine "Tusk". S.s.b. and c.w. are used. Reports are good, considering that most operating is done at a depth of 65 feet in the Atlantic!

PJ2AE, of the Netherlands Antilles, has now returned to the United States as W1ITE.

Keep an ear open for VR1S who should be active on c.w. 14 Mc. from Funafuti Island.

From Comoros Island, FH8CD is operating s.s.b. on 14275 kc.

Red China stations BY1PK and BY9SD occasionally give out with a contact.

VQ2AD is operating s.s.b. tx of low power of 8 watts on a frequency of 14276 kc.

SV0WDD, SV0WF and SV0WG are active on c.w. and s.s.b. from the island of Rhodes.

VS9MB is still active from the Maldive Is. on s.s.b. with low power.

W1BB has now worked 75 countries on 160 metres—his latest was 9A1VU.

Cards received through the VK5 Bureau this month include some very good ones and include: MP4BEE, SV0WG, OE2BSL, ZD6BPD, VP8AH, KL7KQ, VS6FI. I1IUS, GM8AT, GI-3LLQ, KH6FBJ, YP1BCD, OZ9KS, HK4AHT, UH8BO, UP2KCA, 4X4MR, DU6TY, VK9RH, ZE7ZR, JT1KAA, VQ8AM, VE7BBB, ZB1BX and OZ6KL.

Ken VK3TL reports that the Europeans are coming in well after 0500z on the long path and picking up on the short path also. 15 mx was open almost all the daylight hours to Asia during the Contest. Some contacts were also made to Asia on 80 mx about 1200z. Ken has contacted the following on c.w.: CE2OF, FB-8WW, JT1KAA, LX3MZ (1210z), OA1U, SP0RF, TF3AB (1210z). On phone FB8WW, 5Z4AM; 21 Mc. c.w., HM5CO. Ken's best QSLs this month: ZP5OG, KG4AM, VP9AK, VQ8BFC (Chagos), 5H3HZ, GB3RAF, VP8HJ (Falkland Is.). Thanks Ken.

Garry VK5ZK. who is doing a masterly job of operating VK5WI of late, reports the following worked on 14 Mc. s.s.b.: UW9CC (1140), UM8KAA (1230), SM5KC (1215), UO5PK (1245), MP4BBL (1300), DJ8CB (1330), UL7FA (1345), YV5AP (0515), XE2HHG (0500), KZ5WI (0530), 4X4JU (0530) long path, XE1MK (0545), XE-1VW (0600), VE7ADF (0615), CR7GF (0630), ZS1YX (0800), ZS6BGS (0815), ZE2JE (0800), whilst on a.m., FO8BL. All times are G.M.T. Many thanks Garry.

From WIA-L6021, Peter Drew has the following to report: DX here is still best on 7 Mc. c.w., wth some quite rare ones like CM2QN and VP4LQ. Most of my DX has been heard between 2200 and 2400 G.M.T. on 7 Mc. with a little around 1830 G.M.T. DL9GN, UR2IP, DL1FF, UAs, OK1QM, YO7DO, SM5BPI, G3EYN, VS1LP, OH5UX, 9M2LO, UL7KDM, DJ2HI, DL1NF, OH1AD, OH2BBM, CR6AI, G2VD. UP2NK, DL7AD, YU1BCD, UL7LK, DL9PU, LZ1KDZ, OZ7BW, SP2IU, YO4YR, YO1WU, HA5AW, VQ8AM, DM3XPA, UB5IM, VP4LQ, SP6AKK, DM5BN, DJ6FO, CM2QN, UB5KDS, VE3BLU, FB8YY, KV4CI, SM5DDA, VR2EG, EL8X and loads of Ws and JAs.

On 7 Mc. s.s.b. the following: KH6FIZ, KJ-6BZ, GI3CDF, G2PU, DJ4GA, VS1LP. Meanwhile 14 Mc. has been mainly full of Ws and JAs as well as little other Pacific stuff like KC6AA, DU1OR. Only other DX outside these areas has been ZS6NE (0550 G.M.T.), ZE8JJ, ZS5QU (0815), ZS6ANE (0810), SM2BJI (0800), FB8WW (0535), DJ9GD (1532), CR7GF (0707), 5Z4IV (0730). All these c.w. except CR7GF and ZS6NE.

You will notice on 14 Mc. only one short path and one long path European for the whole month, although judging by the reception on European stations in the 19-metre band, the best time would be around 0700-0800 G.M.T. long path.

15 metres is useless. VK4BQ most distant station heard during the month.

One DX station logged on 3.5 was YO1HH at 1656 G.M.T. This was during the R.D. Contest. Also heard during the R.D. was VK0PK at 0730 G.M.T. on 7 Mc. a.m., very strong.

QSLs received: VS5LX, VS1LX, ZC5AJ, 9Q5TH, DL7DI, DL5SE, IS1FIC, OH2AH/0, ZS4OF, OE3EX, DL0FT, SM7AYB, EA7ID, CR7CR, SM6BFC, UM8FZ, 4S7AW, G8VG, OZ-1TL, JA5KK, JA1BK, G5RI, PY2AZD, ZS7R, 9G1DV, DL7BB, PA0ZD, OH6NS, DL9OK, PA0RCA/A, I1SCA, I1NAO, UH8AE, VK9RG, OK3KAS, JA3FFD, WN9GBC, DJ8ET. Thanks Peter.

David VK3QV reports especially re 21 Mc. that the band is not dead but just not being used. On the Sunday of the Asian Contest he worked 40 stations in four hours, and there were a lot he did not work. On c.w.: JA1 to JA0, HM5CO, 9M2LO; on s.s.b., W4AXZ/4; on a.m., JA1FKY; on 7 Mc. c.w., JA1DDR, JA1KHK, JA1NRA, K4RDU, K7MBP; on 3.5 Mc., c.w., VK9CJ. Thanks David.

Is there anyone in the Amateur fraternity who might be in a position to pass along information to an essential service who transmits telephone conversations to the north of VK that their transmissions are putting some fairly hefty harmonics every 50 kc. into the 20 mx band. Try turning the beam on Hong Kong one evening when they are coming through, if you don't believe me.

A special thank you to all those who have passed on their thanks to me for the bits and pieces we have included in the magazine. Anyone who has any photos, etc., to pass on would you please do so. I can guarantee their safe return.

My very sincere thanks also to the stalwarts who keep sending in their notes for the betterance of the magazine. These are once again Geo 5RX, Ken 3TL, Peter Drew (L6021), Garry 5ZK, Austin 5WO, Launcse 5LD, David 3QV—may your signals never ever fade, fellas. 73, Bert VK5BB.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5MS	24	306	VK2JZ	61	217
VK6RU	2	303	VK6KW	4	211
VK5AB	45	301	VK3WL	14	211
VK6MK	43	293	VK3ATN	26	204
VK3AHO	51	289	VK4HR	12	192
VK4FJ	21	280	VK4RW	23	186

Amendment:

VK3TL	62	176	

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	326	VK6RU	18	260
VK3CX	26	303	VK3AHQ	79	248
VK2QL	5	301	VK3ARX	66	242
VK4FJ	29	296	VK3XB	75	238
VK3NC	19	286	VK3YL	39	231
VK2AGH	71	267	VK2EO	2	230

Amendments:

VK3AXK	30	190	VK3TL	78	187

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK6RU	8	309	VK3NC	77	287
VK4FJ	32	305	VK3HG	3	274
VK2ACX	6	300	VK3JA	43	252
VK2AGH	83	300	VK7LZ	23	242
VK6MK	74	295	VK4HR	7	233
VK3AHO	76	293	VK2VN	18	233

Amendment:

VK3TL	85	216	

V H F

52 – 144 – 420 – 576 – 1296 Mc.

Sub-Editor: LEN POYNTER, VK3ZGP,
14 Esther Court, Fawkner, N.15, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB-EDITOR

V.h.f. notes for this issue are rather sparse, with some regular contributors missing. The two V.h.f. Group Newsletters are quite interesting and it is hoped that the VK3 V.h.f. Group will present their version in the near future. This is good for v.h.f. enthusiasts as the format produces gossip, etc., for the v.h.f'er without boring all the other devotees.

All VK Amateurs are eagerly awaiting the launching of Oscar III. How many will ultimately take advantage of its ability will have to await its flight. If the achievements of overseas Amateurs mean anything then new chapters will be written into our Amateur history books.

Wally 6ZAA recently visited the Eastern States and I was able to have a 600-ohm QSO with him on his way through Melbourne. Unfortunately was unable to make it an eyeball effort. Any Amateurs visiting Melbourne are welcome at the above QTH for an eyeball QSO or contact me as per details in Sept. "A.R." 73, 3ZGP.

NEW SOUTH WALES

The following is extracted from the VK2 V.h.f. Group's Newsletter. The v.h.f. 24-hour event based on the ideals of the Remembrance Day Contest is over. It appears that over 80 stations took part. There were 27 logs returned and it was won by a country station. Proof enough that if a v.h.f. section was included in the main contest, it would receive support at least to the h.f. section. All who took part enjoyed it, it had three stations in the field for the 24 hours, the activity only stopped between 0200 and 0600. A great many full calls appear in the logs. The Group Committee wish to thank each and everyone of you for supporting this event and hope to see you again next year (on a nation-wide effort). The honour of first place goes to Tony 2ZCT from Newcastle.

Activities. October 2: Meeting; most likely a series of films on Rain Making. Oct. 3-4-5, long week-end: Three field activities. The Hunter Branch will be holding their usual Dinner and field events. The South West Zone will be the usual event and held at Albury this year. The V.h.f. Group will be holding a camping week-end. Horrie 2HL will be the chief scout and he is still wanting to hear from anybody interested. Unless there are 6 to 12 firm starters, it will not be much. Within 50 miles of Sydney. Field events on the Sunday. Contact Horrie and listen to the broadcasts for details. Oct. 25 will be the Wollongong field day. Oct. 28 will be the night fox hunt. Dave 2AWZ and John 2ANF will be the foxes.

From Canberra: John 1ZRX reports that Eddie 1VP is on 2 regularly with 2AAK and 1ZRX. Eddie is building a 432 Mc. rig and has his 6 mx ready for summer. 1CR has 10w. on 2 to a halo. 1ZRX is on 2 mostly two or three times a week. He is building for 6, a shack and a tower. His beam is a 3 element closed spaced towards Sydney and Channel ABWN 5A is consistently 5 and 7.

THE BEACON BOX

VK5VF—

6 Metres — 53.000 Mc.
2 Metres — 144.800 Mc.

One call on c.w. then carrier for 40 seconds, then repeat, etc. Operation is almost continuous.

VK6VF—

6 Metres — 52.006 Mc.
2 Metres — 145.060 Mc.

Automatic c.w. identification with approximately four seconds key-down position. Operation is almost continuous.

VK3: ATV0—

51.75 Mc. f.m.
0900 — 2300 hours daily.
(100kw. e.r.p., 2600 ft. elevation)

QUEENSLAND

What has happened to 2 metres of late? The chief development on this band has been the appearance of a 5 x 9 signal from Bribie Island. Ross 4ZAT is responsible for it. Tom 4ZAL took portable 2 mx gear with him when he went to Toowoomba recently, but he had beam trouble. The trouble took the form of a howling south westerly gale. Bert 4CP should be running an 829B to its limit by the time you read this. Tom did visit a number of the boys upon the range and he tells me that Keith 4ZKH could be expected to be using a 2 mx mobile from Picnic Point in the future.

A week or so later Tom went down to the South Coast (Surfers Paradise). I don't know what words he used, but it seems quite likely that John 4RZ, Arthur 4FE and Bill 4WS may be establishing a 2 mx net with the object of both local and Brisbane DX contacts. Finally, it is rumoured that a certain Ham whose v.f.o. is more stable than his crystal on 2 mx is in the process of building a "proper" receiver for the band—at last did you say?

There are some impressive thank-you cards from Scout Hdq. for those who took part in the Easter Scout Venture. It is good to know that the v.h.f. boys are thought of so highly by the Scouts. We thank the Scouts for their kind thoughts and we are only too pleased to make ourselves available and provide radio communications for the Easter Scout Ventures. All those who went to the last venture will agree with me that we Hams had a wonderful time.

While on the subject of Scouts, I may mention that a number of 6 mx stations and possibly a couple of 2 mx stations will be on during the Jamboree-on-the-Air. Stations that will definitely be using their call signs include David 4ZDF, Tom 4ZAL, Angus 3ZIC and Mick 4ZAA.

I have word that John 4ZCT will be looking for 6 mx contacts from the Solomon Islands from November onwards. Rick 4ZWL from Cairns is in the big smoke and has made many local contacts. He may be here permanently now.

Of late there has been talk of a 6 mx tx hunt instead of the regular hunt on 2 mx. The main problem, however, is the relative sizes in directional aerials needed. (We get enough glances from the public as it is when the Mick Mobile goes through the city complete with 2 mx beam.) However, Malcolm 4ZEL says he has solved the problem but as yet we have not heard how.

I have been on holidays for two weeks and took 6 mx gear with me. I heard the Brisbane boys very well, but my gamma match was incorrect. Doug 4ZDL and Neil 4WW came on the bands and one night Doug, Bill 4WS and myself went up to Eagle Heights to work back into Brisbane. The temperature was about minus ten degrees (it felt like it, anyway), but we managed to put a signal into Brisbane on both 2 and 6 mx. Finally, we worked Roy 4ZRM crossband duplex.

Although I could hear the Lismore boys from where I was, I could not make contact —sorry chaps. Last month, there was a DX opening for a short time and I heard VKs 2 and 3. VK5s were also heard. Actually Tom 4ZAL heard ATV0 up here and began calling CQ DX. This produced results and Roy 4ZRM worked Herb 3NN.

Finally, before closing, I should like to welcome Wayne 4ZBN, Dave 4ZJH and Lawrence 4ZLL to the v.h.f. bands. 73, 4ZPL.

WESTERN AUSTRALIA

From the VK6 V.h.f. Newsletter: The Scout Jamboree-on-the-Air will be held on October 17-18. Members 6ZAY, 6ZEA, 6ZEP, 6ZEZ, 6ZEE and 6ZBY indicated they will take part in this activity. Lance 6LR, Alyn 6ZDM, Doug 6ZDW and Tony 6ZDT were asked to be a committee to investigate the difficulties and methods of overcoming same in constructing a 52 Mc. beacon for operation by Gill 6ZBW at Mawson, Antarctica. Gill will leave in December for a 15-month tour of duty.

The meeting on 24th August was a junk sale. Quite a bit of good stuff amongst it too and ably auctioned by Dennis 6AW. 717As were going for 2/-, a 7-9 Command went for £5 and somebody got a good electric fan for 5/-.

Six cars were present at the fox hunt on 22nd August. The fox used a modified Pye Reporter and unfortunately could not be heard at Plain St. due to a faulty coax. connector. However, after opening the first clues and arriving at Mosman Park, all cars found the rig. Properly connected, it has been used to work Bunbury, 90 miles south.

I got an interesting book on inverted vee beams from England recently. Their main advantage is a supposedly lower angle of radiation, but since it does not seem to matter whether the vee is inverted or upright, as in the dual vee beams, I'm wondering if the intermediate position would not be just as good.

Activity on v.h.f. is sluggish due to much re-building of gear. Jack 6BU has built a converter to feed into his Collins 75A3 on 28 Mc. When last heard, he hadn't figured out which 100 kc. pip was which as those net frequency (?) guys were spread over a couple of hundred kilocycles.

Don 6HK has tried etching a crystal with some ammonium bifluoride. 100 kc. a day is the rate and it slows down as the crystal gets smoother. Should be useful for changing 50 Mc. rocks to 52. The crystal should be ground with paste after 200 kc. shift to avoid irregular etching. 73, 6ZAG.

PAPUA

52 Mc.: No DX signals heard during the month and only a little on air type activity locally.

144 Mc.: No signals heard, no activity.

General: The recent burst of activity in the construction field has shown a slight decline. 9ZGB has completed his new tx and is busy on a new rx. 9CK still working on a bigger and better tx. 9ZJD last seen alternating between semi-completed tx, rx, mod. h.t. supply and converters. 9ZBV is packing ports and should soon be active from Rabaul until early in the new year. 73, 9ZBV.

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CALL BOOK MAGAZINES

The Federal Treasurer, W.I.A. is still flogging recent back numbers of "Call Book Magazine" at the bargain price of £1 post free. There are two editions: (1) American Amateurs; (2) Amateurs of the world except Americans (known as the DX Listings). Apply to Bob Boase, VK3NI, 50 Cardigan Street, Carlton, Vic.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

I.T.U. FUND

As agreed at the last two Federal Conventions, Divisions were given target figures to meet towards financing representation at forthcoming I.T.U. Conferences. To date, the percentage of the target figures met are shown by States:—

VK2	—
VK3	25%
VK4	23.6%
VK5	—
VK6	21%
VK7	—

The above figures represent monies received by Federal Executive and not necessarily monies still held by Divisions.

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FEDERAL QSL BUREAU

As from 1st September the prefix for Singapore became 9M4 in lieu of VS1. W. Malaya remains at 9M2 but Borneo and Sarawak (E. Malaya) will also have a 9M prefix, the figure not being known at date of writing.

VK4JQ, John Copley, back in N.S.W. after a tour of duty at Willis Island, desires from now on to handle all his own QSLs. He is now VK2AVU, Flat 3, 22 Pavilion St., Queenscliff, Sydney. One of the new men at Willis has a Ham ticket but is unlikely to give it much exercise.

Don Myles, ex-VK0DM, is now located at Flat 2, 178W Toorak Road, South Yarra, Vic. QSLs for his VK0 operation will be issued on the arrival of cards from U.S.A.

The Malayan Amateur Radio Transmitters' Society has recently been receiving applications for a M.A.R.T.S. DX Certificate. As no such certificate exists, the Society wishes it to be known that it awards only one certificate —**The Worked All Malayan Area** Certificate, the rules for which are reproduced below.

Certificate will be issued on the production of evidence of contacts with the undermentioned call prefixes in the Malayan area: ten in VS1, ten in VS2/9M2, two in VS4/VS5 (one area), one in ZC5.

The Malayan Amateur Radio Transmitters' Society require the observation of the following rules when making an application for the award:

A signed statement to the effect that the applicant observed the rules of his/her licence when making the contacts; all 23 cards to be forwarded with the application; a list of contacts with date, time, frequency and mode of operation; overseas applicants send 10 I.R.C's or $1 (U.S.); that reports are not less than readability 3 and tone 8. Applications are to be made to the "Awards Manager," M.A.R.T.S., P.O. Box 777, Kuala Lumpur, Malaya.

Tribute must be paid in this column to the passing at end of August of my old friend and ex-QSL colleague, Jim Corbin, VK2YC.

For over a decade Jim conducted the Inward and Outward Bureau for the N.S.W. Division. Always a busy man with a multitude of interests, it is amazing how he found the time and energy to cover the wide field of his activities. An amazing man, fond of an argument on any topic, intensely loyal, always of a cheerful disposition, he devoted all he had to any cause he espoused. Some years back he suffered a deep disappointment which left a lasting wound from which he never recovered and this contributed in no small degree to his illness and demise. My deepest sympathy is extended to his willing and able colleague, Ruth—his XYL—and to his family.

—Ray Jones, VK3RJ, Manager.

SILENT KEY

It is with deep regret that we record the passing of:—

VK2YC—J. B. Corbin, M.B.E.
VK3ZA—L. T. Frith.
VK6OR—Jack Hoar, O.B.E.

NEW SOUTH WALES

HUNTER BRANCH

The curfew tolls the knell of parting day,
The ploughman homeward plods his weary way,
The s.s.b. quacks louder every day,
And those who have them clearly get most pay . . .

Talk about Gray having energy when he wrote that lot—freely adapted of course—I've got no energy left after twiddling all the knobs to catch all these new ducktalkers. Farmyard frolics is right with Joe 2ANL and now Jack 2KQ. I shouldn't be at all surprised to hear Zulu Lulu on the quackaphone any day now. Meantime all the rest of us battle on with borrowed and beaten-up rigs. Oh it is a shame and why don't they pay me more money, etc., etc. But the poet is right you know, especially in the last line. Never mind about all these new fangled ideas—stick to steam, as I always say. What do you always say? And having philosophied at some length I must now report the doings of the month in this fair neck of the woods.

The September meeting was another well attended gathering of forty-three members, associates and visitors. Those performing were Tony 2ZCT with a voltage regulated power supply and how to make it, and Ian 2ZIF with all about an s.s.b. (not again) exciter—simplified version. As I was not present at the meeting—a rare occurrence I assure you—I am led to believe all these things. There was a certain amount of coming and going with competition books (they were raffle books if the truth were known) and many confidence tricks were played on innocent members to induce the selling of these tickets. However, it is all in a good cause and will help out with the dinner and field day.

At last justice has been done and the foreign intruders have been repelled. I refer to the Sunday morning call-backs which always include Woy Woy with the Lake Macquarie group. After representations made over several years, this anomalous position has been rectified and Woy Woy is put in its place—on the list of course.

Tony 2ZCT is not only proficient at making voltage regulated power supplies. He can also show the Sydney boys how to operate in a v.h.f. contest. To prove this point, he was able to win the recent VK2 V.h.f. R.D. Contest organised by the V.h.f. and T.v. Group. Tony came in first, despite competition from about 80 other stations.

I am forced at this juncture to hide my head and say profuse apologies to our old vehicle mangler, Sherwood. It is written in the archives that, although my previous comments would suggest otherwise, he has been on the air. This is certainly shattering news, but it must be too good to last. Paddy 2AXU was the lucky member at the other end of the contact.

The boys at Westlakes Radio Club are still progressing with aerials and equipment at the station. Thanks to Joe 2JR, they now have two balun transformers for the h.f. aerials, resulting in freedom from cross modulation and t.v.i. In addition, Henry re-built the top band coupler and Max and Arie finished the ZL Special for 20 mx. The tree climbers (riggers to those who don't know) were Jan 2BJO and Robert, who made things easy for the aerial erection. Many hands make light work at the club and thanks also go to David ex 2ZXA and now 2BSC for the loan of some decent microphones for the Monday night broadcast. There are plenty more helpers, of course, and the club is grateful to them all for their assistance.

Before leaving those lads studying for the A.O.C.P., mention must be made of Arie or Rowley—he answers to both—fitting special brackets on the Suzuki to take an AT21 mobile! This I must see. Bill 2ZL was suitably impressed following his visit to the most efficient station in the Branch and now intends getting the AT21 he owns on the air, especially for top band. We are all wondering what wonderful antenna structure he will use now that the myth of the railway track as a hula hoop has been exploded.

I believe that there is a new small motorcycle which stows in the boot of the car, to be used during traffic jams. Thinking over PanSy's suggestion about Hon. Ken (now assistant blue pencil pusher), one rude gentleman suggested that Max and I should have one such cycle in the car when attending meetings. What puzzles me is whether he intended one to ride and one to run or both to ride? Perhaps Ken, in his wisdom, could suggest a solution. For your information, I now weigh in at 10 stone 51 (it sounds better that way).

Something is afoot in the Merewether area—and how is this known? Frank 2APO has not mentioned aerials for at least three weeks. I suspect he has some ether-crusher hidden away for use in the summer. Gordon 2ZSG is all up in the air about his new shack and well he might be, since it is in a well elevated position. Lionel 2CS and Susan 2BSB were heard making rude remarks the other night about efficiently run stations. I know for a fact they both have decremental modulation! What the summer holds for top band nobody knows, but there are several excellent signals on each night of late. This will probably not reach members before the October meeting, but since the November free-for-all will be on the 6th, I will defer reference to it until next issue. Note he waxes poetic at both opening and close. I bet that wins their praise at the Pincottery. See you when you're older. 73, 2AKX.

CENTRAL COAST ZONE

The main news concerns the recent Lord Howe DX-pedition by VKs 2AAK, 2AI, 2TX and 2AXS. It occupied two weeks in the latter half of August. I understand Phil 2TX was chief penciller and 2AXS chief observer. There seem to have been half a dozen KWM2s and a Drake 2B in use on this island paradise. Anyway, the 240v. supply was good and pure and equal to the demand. 80, 40 and 20 mx bands were in use, but the conditions for DX were generally poor. Despite this, Alec 2AAK had 150 contacts and Reg 2AI about 400. These two stations operated from opposite ends of the guest house so I would think they got in each other's hair. The antennae included a G5RV antenna between palm trees at 20 feet high, and a 24-foot loaded vertical (guyed, no palm trees). The results were not outstanding so with a reel of bell-wire, boy-scout fashion, they whipped up a 3 element fixed beam for 20. Fancy leaving the tape-measure back in VK!

Phil was forced to improvise and he remembered that from the tip of his nose to his outstretched finger-tip was 36 inches. On this basis a three element beam was constructed. The wires were held in place at 16 foot separation by nylon cord and suitably placed palm trees. The s.w.r. was 1.05 I am told. You will see that the device needed six palm trees, and there were plenty of them, so they picked the ones that gave the correct spacing. At times the wind did not blow them all equally and this resulted in a few repair jobs. Reg 2AI says the beam was quite an improvement on the other antennae. For myself, I cannot understand how it succeeded because on returning to VK, Phil measured the above portion of his anatomy and it was 37¼ inches. This would amount to an error of 3 per cent. Guess I'll have to blame the palm tree-effect for bringing it back on frequency!

Maj. 2RU has been on a civil defence course in VK3, accompanied by 2PA. Wally 2AXH is happy with his AT21 and AR7, still manages to work a few ZLs. He is restored to health again, thanks to a new lot of pills. Your scribe has been doing research into selectivity of commercial receivers and finds that mechanical filters are sometimes twice as narrow as they ought to be. The Drake too was 1.9 kc. wide instead of 2.4 kc. at the 6 db. points. Can anyone suggest why this is so? 73, 2ON.

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VICTORIA

SOUTH WESTERN ZONE

Hook-up activity has been fairly spasmotic, due possibly to the colder winter weather, but we remind members of our two weekly hook-ups—Thursday 2000 hrs. and Sundays 1000 hrs.

In the Fire Net world, the Westmere group has QSYed down to 80 and 3AKR, 3AGD, 3ADV and others in their capacity as VK3s

can be heard testing the VL3KJ network on 3780 kc.

Don 3AKN and XYL Peg are both to be congratulated on obtaining their unrestrictive Private Pilots' licences in recent months—also Bill 3XE and Bill 3WK and associate Keith Ross for getting restricted licences. Brian 3XN will soon be on the list and is at present going great guns as a student pilot.

Congratulations to 3AAW, the club station of the Y.M.C.A. in Warrnambool, for taking off the VK3 portable phone prize in the Field Day this year. This effectively keeps this particular section in the zone as one of our members won it last year also.

Peter 3FX will be going into a period of inactivity due to a change of QTH. His new location is on higher grounds and not far from the Warrnambool lighthouse (maybe a long wire to the lighthouse for DX eh, Peter?)

3WK was set up portable on s.s.b. at the recent Warrnambool Technical College's Radio Club's display during Education Week. S.w.l. John Ross was responsible for arranging the very effective display.

David 3ZTN has been operating regularly from Hamilton on Sundays using home-brew 2 mx f.m. on channels A and B. His most regular contact is Don 3AKN. Another station expected on these channels soon is Bill 3XE who is currently wrestling with the bugs in his modified 522.

A number of zone members recently met Lindsay 3ZKL when he visited Warrnambool, along with XYL and harmonics, after living in Orange (VK2) for over 12 months. Lindsay reports that Orange, though cold, is friendly and by now no doubt will be back at toil in that fair city after regretfully leaving sunny Warrnambool. Hope we can work you on 6 again this summer, Lindsay. 73, 3WK.

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QUEENSLAND

NOTES FROM DIVISIONAL COUNCIL

The August Council meeting was held on Thursday 6th and Peter 4PJ chaired the meeting. Eleven members of Council were present. Laurie 4ZGL, the organiser for W.I.C.E.N., was authorised by Council to appoint two controllers to assist him in getting these activities moving in VK4.

A Council vacancy occurred due to the untimely transfer of our Publicity Officer, Norm 4NP. Norm has reluctantly been forced to tender his resignation as he is off to VK2.

Ron 4AQ has been appointed by Council to fill the vacancy. Ron has been Outwards QSL Officer since the formation of the present Council. George 4XY has been appointed an ex-officio member of the Council and will fill the position of Equipment Officer which has been vacant for some time.

AUGUST MONTHLY MEETING

The main business of the evening was a report on Jamboree-on-the-Air preparations. Scout Headquarters Commissioners Barry Smith and Noel Lynch were both present at the meeting and names of Scout Groups, without Amateurs to help them, were read out. This year most frequencies including v.h.f. will be used from the station operating from Scout Headquarters in Brisbane. Although the location is a noisy one, it is hoped that as many stations as possible will call the Headquarters station. Special provision has been made for higher and longer aerials to be erected so good results should be obtained.

The usual lecture after business had been dealt with was given by Sgt. A. Crawshaw, of the Police Communications Branch. The subject was "A Brief Outline of Civil Defence Organisation". Sgt. Crawshaw, an experienced radioman, was one of the successful students at a recent school held at Mt. Macedon in Victoria. He was a confident speaker and although the actual lecture material had very little "radio" content, it was one of those subjects that had interest for everybody. A very enjoyable night was had by all who attended the meeting.

A letter was read to the meeting from 2AVU, formerly 4JQ of Willis Island. He says as Willis Island is a separate country, anyone wanting a QSL card from him should let him know. His new address can be obtained from the VK4 QSL Bureau if the new Call Book has not appeared by the time you read this.

A report on the Division's Annual Dinner indicated that it was a complete success. Twenty-nine members and guests attended and a highlight of the evening was a talk by Kev. Burke on "Broadcasting Arrangements for the Olympic Games at Tokyo." After the lecture, ragchews were going on all over the place—poor Jimmie 4PR, he was at a severe disadvantage as he had a mild attack of Laryngitis.

GENERAL NEWS

Al 4SS is proposing to let us have some DX news again. The thought is very much appreciated and we look forward to regular reports from him. Regular news from W6ASH re Oscar III. has been received at 4WI, via 4TY. Things are really up to date.

John 4RZ seems to be permanently installed in his Southport home. He has moved from Gatton and already beams, long wires and dipoles have appeared. Arthur 4FE is damaging all the S meters in the Southport area, and ex-G 4KD is about to come back on the band. Incidentally, 4RZ was most mystified why he could only get a 5 x 6 signal into Lismore on 80 mx. I will say this though, it doesn't help when you accidently use a 20 mx dipole instead of the 80 mx long wire!

An editor for "QTC" still has not been found at time of writing. Peter 4PJ, who has been acting editor for so long now that the job is nearly permanent, could spend valuable time on other Divisional matters. How about offering your services?

The following is part of notes compiled by Newt 4QW while on holidays. Mount Isa—Owen 4OV uses a beam for 20 mx and a triangular shaped antenna for other frequencies. He is very active when work allows, but does not rise early enough to join the Kookaburras. At present the only other active Ham is 4JC. He is unable to receive properly owing to noise from the 132kv. lines across the road. However, he is getting a mobile ready for his holidays.

Charters Towers—Des 4GZ has a wonderful array of equipment in his shack and is still adding more. He is not yet converted to s.s.b., preferring to use smoke signals. He uses an electronic key expertly. He finds conditions bad for local contacts, the stations being either too close and in the skip or so far away that the noise or QRN interferes with phone. Consequently c.w. is usually the order of the day.

Mackay—John 4FH has a tidy beam above the rooftops but is only occasionally active. 4OP is not at present active at his location due to a change of QTH. Incidentally, Newt was collared into broadcasting for both the A.B.C. and commercial stations while in Mackay—a change from an AR7, AT5 and trap-loaded windom!

Well that's all for now. I hope the band conditions are fair in two weeks time and I wish you all the best in the Jamboree-on-the-Air. 73, 4ZBD.

TOWNSVILLE AND DISTRICT

Seems that all correspondents except PanSy are finding the going tough in getting enough news to keep their notes going. Not meeting enough of the chaps myself, I also find it the same.

A fortnight ago Bert 4LB and myself journeyed to Lower Burdekin Club to meet all the locals in a send-off to Claude 4UX. Claude has been promoted and has since left for Victoria to have a refresher course in television prior to taking over a new station in Childers.

A very pleasant evening and dinner were spent at the Hotel Ayr, where Frank 3ZHF acted as host to the gathering in making a presentation to Claude for the wonderful work that he has done in getting the local boys through their examinations and on the Ayr. Until Claude came into the district, the local activity was practically non-existent. Claude has also been responsible for the local Scouting movement receiving much knowledge in radio taking out portable gear and camping with them on all occasions.

Frank spoke for a very long time in paying tribute to Claude, and I think that even then he was unable to enumerate everything he wished to say in this regard. Bob 4RW suitably backed him up, telling of the long time he has known Claude and the help he has received whenever required. Also tribute was paid to Jess for the numerous cuppa's enjoyed in visiting their QTH. Frank then presented Claude with a brief case in recognition of the esteem of which he was held by the local club.

Claude, in responding, was very much overcome and believe it or not was lost for words. He then traced in a very, very brief way, the course of Amateur Radio in the district and his long association with the W.I.A. and sincerely hoped that the boys whom he had helped would continue on where he has left off and exceed the local club of Townsville in numbers of new members in their ranks.

Two members backed up the other speakers and the evening finally came to an end. Always remember while travelling, there will be a cuppa waiting at Claude's new QTH as you pass through Childers.

Very unfortunate not being on the job when Ernie 2ADL jumped out of the train at my station (railway) to look me up as he and family were passing through on a visit as far north as Cairns. While in Townsville, Ted 4EJ took him in tow and showed him all the best of places and the sights that can be seen. Believe he had trouble in degassing metal 6L6s. Ernie contacted me on the twisted pair on the job, very sorry that I did not meet him in person as I have visited his shack on numerous occasions while in Sydney.

S.w.l. L2136/4, Afton still in the Cairns Hospital and is progressing slowly.

Interference was claimed by local taxi club recently. Just as well I was out visiting the local hospital at the time and not being on the v.h.f. band since the last Ross Hull Contest. Even then, some snide persons trying to see that a harmonic of around 14100 on s.s.b. could be heard on a.m. by the taxi company. Perhaps when all is said and done, it was one of their own cabs which was left switched on (a very wild guess?).

Bill 4ZBE and Don 4ZDM are anxious to start a class for budding Amateurs. While I think it is about time the local high schools were interested in Youth Radio Clubs. Anyone interested in carrying the matter further? Also the University may offer another avenue for our hobby. 73, Bob 4RW.

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual in the clubrooms to a very representative gathering of members and took the form of a display of members' home-constructed equipment. There is very little new that can be written about this type of meeting night, except to say that the quality of the gear displayed, plus the ingenuity of the members displaying the equipment seems to improve so much each succeeding year. Personally, this type of meeting is the only one in the syllabus which I dislike, not because of the type of meeting itself, but because always at the end of the meeting I have such an inferiority complex that it takes me about a fortnight to get my confidence back. The reason? Simple, when those youngsters have finished their displays and have given their personal explanations of the equipment to a goggle-eyed audience, to say nothing of the fact that one or two of them are only just in their teens, the average oldtimer feels about as ignorant of Amateur Radio and its present day practice, as it is possible to feel.

Anyway, be that as it may, the gear displayed was of a high order and I certainly do not envy the judges their job, although the three of them (Lloyd 5OK, Jeff 5ZP and Geoff 5ZCQ) did not appear to be perturbed to any degree. There were four sections, and the following members filled the placings. Transmitting: Gilbert 5GX with an excellent

This badge distinguishes the active member of the W.I.A. You can purchase it from your Divisional Secretary.

HUNTER BRANCH

CONVENTION

2nd, 3rd & 4th October

★ Constructional competition.

★ Annual Dinner at Prince of Wales Hotel, Merewether.

★ Field Day at Marmong Point, Lake Macquarie, comprising Scramble, Tx Hunts, Launch Trip, in fact something for everyone at VK2s most popular Convention.

Full details in the September Bulletin.

s.s.b. rig, followed by a detailed and scholarly description of the set-up. Test equipment: Box 5ZDX. V.h.f.: Trevor Martin, for a very novel approach to a v.h.f. tx. This boy is only about sixteen and stands up and talks to a room full of members with all the poise and assurance of a veteran, and incidentally is more than half the cause of my attack of inferiority complex. And last, but by no means least, Best Constructed Equipment: Al 5MF, with an s.s.b. transceiver that had to be looked at twice to determine that it was home constructed and not of commercial vintage. All and all, a very successful display and one that all present enjoyed, and a definite indication just how far the art has progressed in the past few years. The Acting President (Ross 5KF)—Phill 5NN being absent with or without leave—thanked all of those who had entered the display and made the night so interesting and then threw the equipment open for inspection.

No mention was made of my entry, an invisible three-dimensional s.s.b. discriminator, and why might I ask? Simply because the judges said that they could not see it. How biassed can they be? I make something invisible and they have the cheek to say they can't see it. Just how successful was my entry? Never mind, I am used to such tactics. Remember when Pincott 3AFJ was technical editor for the magazine? He never did publish my article on the differential equation of the modulated symposium of the whoosis. Such is jealousy.

A surprise member of the audience was Len 5YF, who came along with his son. Long time since you turned up at a meeting OM. There should be more of it. He was telling me that it seemed a long time ago since he attended his first such meeting—down at the Railways Institute—my word, that's going back some.

Al 5MF, he of the s.s.b. transceiver, made the understatement of the night when he lifted the lid of the transceiver and somewhat naively said, "There is an awful lot of parts down there"!

Ron 5KS captured the imagination of his listeners when he openly admitted that his XYL had chosen the colour scheme of his s.s.b. rig on display, and then laid them in the aisles when he brazenly stated that he had been stuck for a chassis and the XYL's cake tin came in handy. What a daredevil!

Rob 5RG, after his technical description of his entry and its ability to receive s.s.b. signals, frankly admitted that on a.m. it was not so hot, and before resuming his seat openly leered at me and sneeringly said in a loud voice, "But then nobody listens to a.m. these days". Gercha.

The Secretary (John 5JC) announced at the meeting that Dennis 5OF had returned from the Old Country again, had been lucky enough to secure his old call sign and expected to be active before long. Welcome back OM.

John Vayne, a country member from Ceduna, was noticed at the meeting. This joker has passed his limited exam. but does not intend applying for a call until he has passed his full ticket. He is in the meteorological set-up at Ceduna, which incidentally tickled my sense of humour somewhat—get it? Vayne-Meteorological—Weather Vayne—Meteorological — get it? Oh well, I thought it was funny. Weather Vayne—Meteorological—oh skip it.

Well, the R.D. Contest has come and gone again. Friendships have been made and renewed again, and without doubt this Contest remains the one and only Contest capable of attracting competitors from all walks of life each year without fail. Most of those who enter would not be bothered to even listen to any other form of Contest, and whoever was responsible for thinking up the first R.D. Contest should feel more than gratified with the annual results plus the never-ending enthusiasm. Like many others, my entry into the Contest ranks as only a token one, due to the fact of my shift work, and although I always manage to keep track of the doings on the receiver at work, it is not usually until about 3.30 p.m. on the Sunday that I enter the fray. My entry into the arena this year, as usual, was greeted from all and sundry with ribald remarks, coarse suggestions as to what I should do with my spark coil, and hollow laughter when I give my first number of 59-001 with only about two hours or so left to compete. If I was given a fair go, I would expect to notch up a couple of hundred or so points, but not only do I have to fight my way through the normal QRM associated with the Contest, but I also have to fight a running fight with the interruptions, etc., etc., besides stopping now and then for short conversations with all the breakers-in who show a somewhat unusual interest in my physical welfare and other topics of the day, in no way related to the Contest or anything else. This year the VK3s tried to get into the act with such greetings as "How are you Granpop", "Put that rig back in the mothballs", etc., etc., but I took it all in my stride and slowly but surely pressed forward to my goal of 13 contacts.

Just after I started, I heard Ken 3AFJ calling me, but I ducked up the other end of the band in the hope that he would take the hint. But of course there are none so blind as those that will not see, and he chased me from one end to the other, until finally in desperation I gave in and replied. I tried to bluff him by saying that I did not get his last letter, but he only retaliated by saying, "What about getting a new crystal detector?" Anyway, we exchanged numbers and a couple of compliments, and drifted apart, probably not to meet on the air until next year, but it shows how this Contest affects the mentality because under ordinary circumstances I would have treated him with ignore. With the Contest rapidly coming to an end, and my score in somewhat jeopardy, I committed, for me, the sin of all sins, I called an s.s.b. competitor for a couple of points and then spent the next ten minutes or so fleeing from a horde of "Holier than Thous". All in all, I thoroughly enjoyed myself, I gave the lie to the oft-repeated statement that I could not come on the air, I proved to all and sundry that I could copy s.s.b. signals—may I be pitied and pardoned for stooping so low—and I renewed acquaintance with a great number of old friends, to say nothing of providing some innocent amusement to a number of competitors to whom R.D. Contest day apparently means a chance to get back at me for all I have written during the year. See you all next year, I hope, but always remember that I have the last word, and the pen is mightier than the sword!

By the way, in the sample copy of the log sheet in the magazine I notice 5XU has the pride of place still. What about a change? Something like 5PS, or possibly 5PS, or even for a change 5PS. I am sure Gordon would not mind! I would suggest using my call sign, but my normal sense of modesty and decorum would naturally prevent me even mentioning it!

Cec. 5BZ was one of those to break-in and exchange a few words in the Contest, and quite openly admitted that he was not a competitor this year, but was only sitting back and enjoying the battle. Good to hear from you Cec., when are you going on your next world tour?

Lloyd 5OK was knocking them off at the high end of 40 mx, s.s.b., or a.m., it made no difference to him, and he had a signal and a half at my QTH.

Wick 5WM tells me that he tried to get into the act several times with a temporary set-up, but as he was crystal controlled it was too hard a battle.

Phil 5NN, our venerable and respected Divisional President, was in the midst of it all and notched a real President's score, even though it was on s.s.b., and certainly gave the VK5 members an example to follow. The score I mean, not the s.s.b. signal!

Going on an unofficial estimate of the VK5 top scorers, I am going to stick out my neck and say that we should have a good chance of sneaking the trophy this year, providing of course that everybody who competed send in their log sheets. However, time will tell, and I could be wrong, but we certainly had a representation above normal and should give the other Divisions a fright, if nothing else.

One or two of the gang who are battling it out with the code these days have asked me if there are any tapes available at various speeds from which they could obtain some valuable experience in receiving. I made a few enquiries locally, but with no luck, however one of my bloodhounds—"Chips" by name—we call him Itty-Bitty-Kitty-Sitty for short—tells me that a Frank Pearson, 2ACQ, who is the chap in charge of the Morse sessions nightly conducted on 3550 kc. from various stations under 2AWI, has several tapes on which various speeds have been recorded and any interested party can obtain use of these tapes by enquiring from the Education Officer for the VK2 Division. It goes without saying that the applicants must have the necessary equipment for replaying the tapes. Anyway, contact your local VK5 Council member on the matter. He may be able to give you more information on the tapes.

Talking of Morse practice, Uncle Tom (5TL), who used to have a Thursday night transmission with various code speeds from Renmark, is not too sure when he will be resuming. It probably seems strange for him not to be doing it after something like 15 years of transmissions. If I remember rightly, he started the session when he was tea drinking at Largs Bay Post Office, when the late Hal Austin was 5WI. My oh my, doesn't time fly?

Jack 5LR, at the moment of writing, is holidaying at Renmark, and my spy tells me that he has been holding serious discussions with Harold 5ZAB on the ifs and whys of s.s.b. Another deserter from the cause? Jack—how could you?

Incidentally, one of the local radio and electrical warehouses in VK5 had a fire recently, and Harold 5ZAB was a bit perturbed on the matter because he had a heavy duty filter choke in their hands and was wondering whether fate had dealt him a nasty blow. However, all was well because the filter choke arrived all OK, much to Harold's satisfaction. You can be lucky sometimes OM.

Heard via the passion fruit vine that 5WI in discussing the Asian Countries Contest rules and the last two figures on the RST report, which indicate the age of the contestant, said, and I quote—"I just don't know how 5PS and those others with three figure ages will get on". Garry, how could you be so heartless and disrespectful to age, why everybody knows that I have not hit the century yet, 99 years and 364 days if you please!

Talking of age, and who wants to, I heard Roy 5AC on 80 mx one night recently. Now there is an old-timer if ever there was one, although to be fair, if I did not know just how long he has been in Amateur Radio, I would not have thought it, going on his sprightly action. Still at the brewery Roy? Do they still have samples? Not that I care of course!

Uncle Tom (5TL) is reported as being seen in the streets of Gawler one recent Friday night. Investigations reveal that there was a choral presentation by choirs in conjunction with the Tanunda Liedertafel on that night, so all was explained. Tom was urged by his old Renmark singing associates to join in, but he firmly declined. He used to wobble a wicked tonsil did Tom. Bingo used to turn green with envy!

Rumour is a fickle jade I know, and rumour has it that a certain VK5 contestant in the R.D. Contest was interrupted during Sunday afternoon by a knock at the back door, and upon investigation found it was the next-door-neighbour, who said that she could hear a voice giving numbers and calling securde on her t.v. set. Our hero, not one whit deterred, told her that the Russians had just fired another satellite which was in orbit over Australia and what she had heard was the instructions to the satellite to keep it in orbit. He advised her to hurry back to her t.v. and listen in some more, because she was very lucky to hear it, and by 5.30 p.m. it would have passed on and would not be audible until about twelve months time. Tickled pink, the neighbour hurried back home, and on Monday night informed our hero that he was a near genius because exactly at 5.30 p.m. the satellite moved on and was heard no more! Well, well, well, there should be a law against it—there is?—well perhaps I should not have mentioned it!

Last month I commented, not very enthusiastically, on the front cover of the magazine with all the "Holier than Thous". This month I comment, full of enthusiasm, on the front cover of the magazine (for August) with its bevy of lovely femininity. I never thought for one minute that our hobby sheltered within its maze of technicalities such a charming group of operators, so petite, so dainty, so attractive and so chic. My address is in the call book girls! Whistle, whistle, whistle. By the way, my old palsy-walsy, my editor to beat all editors, I have a photo of myself available for the front cover if the clamour becomes to loud to ignore!!!!

The results of the 1963 "CQ" World-Wide DX Contest gave me the opportunity to spread Tubby 5NO and Jeff 5ZP in the weekly "Advertiser" column, complete with headlines, as the winners of the multi-operator single transmitter section. Good publicity for VK5 and Amateur Radio in general, to say nothing of confounding my recent critic who coarsely suggested that ordinary mortals never made the column, and if one ever did he would be quite prepared to crawl on his hands and knees to Glenelg. Well, my sprightly young critic, when do you get on your hands and knees? Oh well, never mind, flattery runs off my back like water anyway.

My spies report that Laurie 5XN has given Amateur Radio away in favour of cultivating orchids. This I find hard to believe. He will come back again, bigger and better than ever. Orchids, well did you ever, Pansies yes, but orchids, oh dear, oh dear.

I notice, with some misgivings, that from the land of the deep thinkers comes the self-confessed statement that Ken 1KM asserts that he is in ecstasy because I am supposed to have spoken three times to him in my recent notes. Be that as it may, I now speak to him only once, and that is to tell him that at long last the Education Department of VK5 officially has advised us that they now recog-

nise our work for the Y.R.C., and naturally that gives us the green light for further activity. Try that on your glochenspiel for size!

I also note, again with misgivings, that from the land where they still can't grow a straight banana, that Bill 4ZBD is wondering if I read the news from other States? May I say—Pansy Peruses—Pansy Muses—but more often than not—Pansy just snoozes!

Now before I close for the month, a word to my army of spies and espionage agents. Attention spies, masks on, hats over the eyes, cloaks well wrapped round the body, a few hisses and groans. Now hear ye, hear ye! Have a gander of page 11 of the September issue of "A.R.," column 3, the last two lines of Pub. Com. Reports. See how he is worming himself in? See his devilish cunning? Never fear—we will defeat him—although it will be a hard job. How low can he sink in his attempts to up-end me? Hiss-hiss-hiss. Sorry you are giving it away Ron 3RN. It's been a long time, and I will try and win that award the first time. But what hope for me with your successor. I am bound to finish in Hints and Kinks!! 73 de 5PS—PanSy to you.

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OBITUARY

JACK HOAR, O.B.E., VK6OR

It is with deep regret that we record the passing of Jack Hoar, O.B.E., VK6OR.

Jack was for a number of years a Councillor of the VK6 Division. At the same time he was in the Armed Forces, belonging to the recruiting section. For his outstanding work in this direction he, at his retirement some seven or eight years ago, was awarded the O.B.E. The older Amateurs will miss his cheery voice and the new ones will have missed a lot by not knowing him.

He leaves a widow and a grown up family. We all extend to his widow and family our heartfelt condolences.

Vale, Jack.

WESTERN AUSTRALIA

Have you ever tried to write notes without any information having been passed along? This is what has happened this month, so I hope that someone might read these and then realise that their information could help.

It is with regret that we have to report the passing of one of our numbers, Jack Hoar, O.B.E., VK6OR, became a silent key just after the R.D. Contest.

We have been able to gather some items which could be of interest. Bill 6DX, in Kalgoorlie, very adamantly stated that he would not become a user of s.s.b. If you listen on 80 mx however, you can hear him using this mode and he would like reports, comments, etc., from anyone who would care to give them.

Really, there must be something in this s.s.b. as we now hear faint murmurings of moves in this direction from Woroona and one only VK6RG.

We are pleased to hear George 6GH back on the air after having had a spell in hosplital. From what I hear, Len 6LG has not been keeping the best of health so if this is so, Len, we wish you a speedy recovery as we miss your signals on the air.

Please do not forget the Scout Jamboree-on-the-Air chaps. Help make this event one which the young people will remember. Who knows how many may be guided into this hobby of ours by your helping in making your station available.

This year as conditions on 40 mx have been so unreliable for local working, the Council have decided to hold an 80 mx scramble in lieu of the usual 40 mx scramble. How did you go?

Now is the time for everyone, who has any problem or suggestions relating to Amateur Radio, to submit them to your Council so that agenda items for the next Federal Convention can be prepared. Remember that your suggestions, if submitted, could help everybody.

This seems to be all that comes to mind at present and the deadline has come, so till next month, 73, 6RY.

— . . . —

TASMANIA

Here it is October already. Three-quarters of the year gone. Next thing we'll know it will be the festive season again, which means holiday time, intrastate and interstate travelling, mobile, and portable operation, and even mobile marine for some I expect. Although there is still a couple of months to go, might I take this opportunity of extending to any visitors to the State an invitation to attend any of the meetings held in the various zones. In the North West, Lakin's Hall at Ulverstone, is the venue on the first Tuesday of the month. The Northern Zone meet at the Adult Education Centre, 51 York St., Launceston, on the second Friday each month; whilst Headquarters zone meetings are at the Institute Rooms, 147 Liverpool St., Hobart, on the first Wednesday of the month. The V.h.f. Group hold their get-togethers at the same address on the third Wednesday each month.

At the September general meeting a lecture entitled "Introduction to Pulse Techniques" was most ably presented by Tom 7SW; so much interest was taken in the subject that Tom was "conned" into continuing it at a future meeting.

At a recent Council meeting we had the pleasure of a visit from Mr. Ian Hunter, who is Scout Organiser for the Jamboree-on-the-Air which promises this year to be better than ever. Quite a few members are going into the field for the week-end and all should have a good time. Remember though, chaps, the Jamboree is **not** a contest, the object is to contact other Scout Groups on the air in other States and we hope throughout the world.

Incidentally, gentlemen, if you derive any pleasure at all from your hobby (and you do, otherwise you'd have a different one), then may I impress upon you the urgency of meeting our commitments regarding the I.T.U. Fund. At the time of writing we are £70 odd shy of our target in VK7. Now if Government loans can be oversubscribed (and they're our nation's future), surely it would be a shame if our hobby's security was undersubscribed, and we lost our bands because we were a few pounds short. Don't be complacent and think we couldn't; if we can't put up a good fight then they'll whittle a bit more off our already meagre bit of the spectrum. So what about letting the moths out and try and see if we can't oversubscribe? Others have done and are doing their share, what about you? 73, Geoff 7ZAS.

NORTH-WEST ZONE

There was a very good attendance at our Sept. Zone meeting, there being 18 members present. Main item of interest was the "Man in Space" and other films presented by our worthy President, Syd 7SF.

Much discussion took place about the recent R.D. Contest, and it was pleasing to note all the activity among local members. Among the rarer call signs heard were Leon 7JP and Dennis 7DR. Othere heard working were Ken 7AI, Syd 7SF, Athol 7ZW, Sam 7SM, Ken 7KH, Max 7MX and George 7XL. Should give us a good score.

Sunday morning broadcast from 7WI has been very good on 80 metres lately, most signals being 5 and 9 both ways.

Ken 7KH has at long last got his new receiver front-end going and had a nice sked with VK0PK on Macquarie Island for half an hour, 5 and 9 both ways. You are doing an f.b. job on public relations down there Peter. George 7XL is still fiddling about with xtal filters and has converted at least one more of our members to s.s.b. David 7MS has finished his "hot" receiver and is getting the latest s.s.b. transmitter just released. Plenty of DX then David.

Associate Ray Schultz has passed his limited and will be doing his c.w. at the next exam. Winston Nickols now has his call sign and Noel Stutterd is waiting for his. Bruce Kelly only has to pass his regs. and we will have yet another call sign in the Burnie area.

Looks like a lot of 2 meter activity on the N.W. coast this summer as besides Winston, Noel and Bruce, Bob 7ZAA, Neville 7ZEE, Mike 7ZAV and Anne 7ZYL will all be active. By the time you read this, Mike and Anne will be on their honeymoon prior to settling at their new QTH at Burnie. Congrats. and all the best to you both.

Athol 7ZW has moved to his new QTH at Cooee and reports ideal conditions for radio out there. Our old congenial friend, Max 7MX, is going to ZL land for a holiday and should arrive at Auckland on 7th Nov. Keep an ear out chaps and you will hear Max and his XYL working from the Ham shacks in ZL where he has many friends. 73, 7KH.

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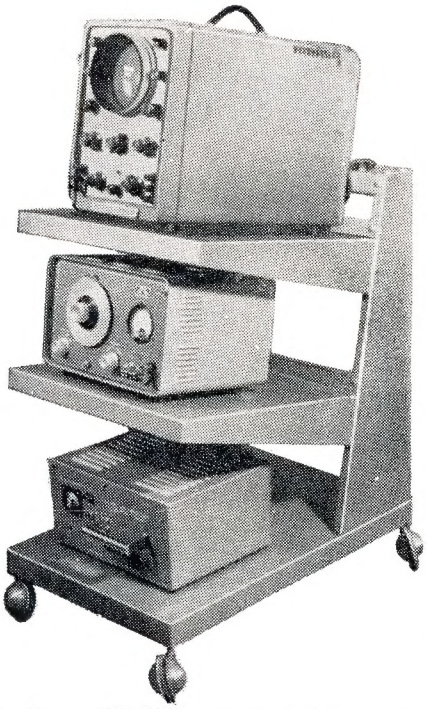

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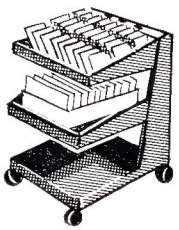

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LM 37

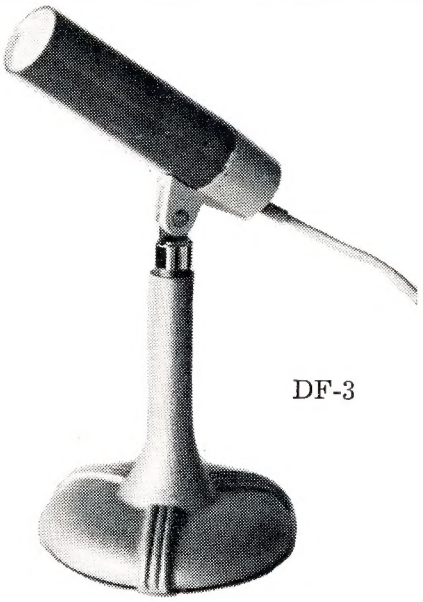
FOSTER DYNAMIC MICROPHONES

SPECIFICATIONS:

Output Impedance .... 50 ohms or 50K ohms
Effective output level .... —55 db. [0 db. = (one) 1V. Microbar]
Frequency response .... 50 to 15,000 c.p.s.

OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm.
Size: 4½" long, 1¼" diameter.
Cable: 12 ft. of P.V.C.
Swivel fits 5/8" 26 t.p.i. Stands.
Colour: TWO-TONE GREY.



DF-3

Retail Price 50 ohms: £4/7/9 + Sales Tax 10/11
Retail Price 50K ohms: £4/10/0 + Sales Tax 11/3

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MAXIMUM RATINGS AT 75° C.			
	IN87A	IN617	IN618
Peak Inverse Voltage . . . . . volts	30	100	100
DC Operating Voltage . . . . . volts	20	75	75
Peak Rectified Current . . . . . ma	45	150	150
Average Rectified Current . . . . . ma	8	17	17
Surge Current (1 sec. max.) . . . . . ma	200	500	500

SUBMINIATURE
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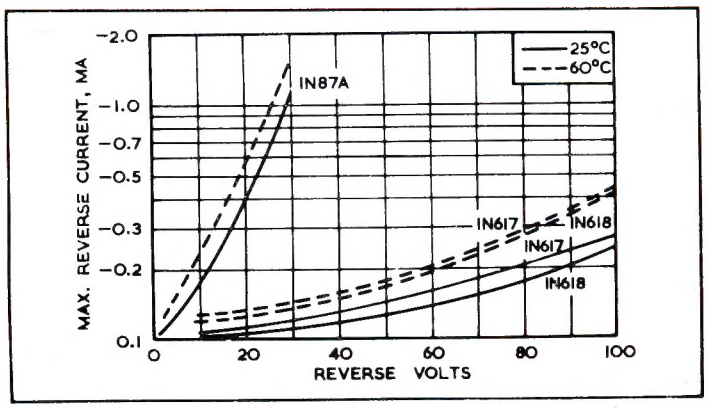

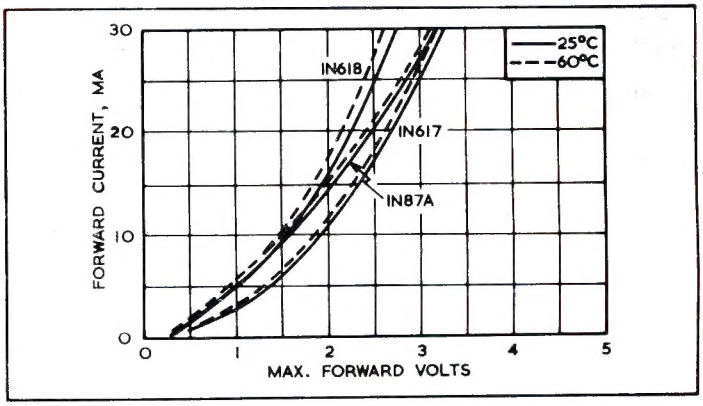

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